SPECIAL REPORT: Whatever skill you're looking for, it will cost you dearly. Our Annual Skills Survey reveals that nearly all top skills come at a salary premium. Page 89

The Newsweekly for Information Technology Leaders News updates, features, forums: www.computerworld.com November 17, 1997 · Vol. 31 · No. 46 · 176 pages · \$3/Copy \$48/Year

Migration costs sting 16-bit users

By Sharon Gaudin and April Jacobs

DESPITE Microsoft Corp.'s efforts to push users to its 32-bit

platform, nearly half of the approximately 72.3 million Windows users (Windows 3.1, 95 and NT) are still struggling to run their legacy 16applications,

trade shows, pages 1 and 16

Migration

journey." - DAVE LINGREN, **DUNSGATE**

COMDEX PREVIEW

Exclusive CW survey. Users rate usefulness of

► **Booth bimbos.** Comdex cheesecake hurts gains by

women in IS, says Laura DiDio in Ms. MIS. Page 98

- Buying PCs online. CW taps IS pro

Tom Lamoureux to explore shopping on

"feels like an

endless, costly

shelling out millions to rewrite them and digging deep for costly hardware upgrades.

Those customers will be left further behind when Microsoft

> this week outlines rollout plans for its 32-bit Windows 98 and Windows NT operating systems at Comdex/Fall '97.

Those plans include two specialized

Lamoureux

demonstrations of Windows 98 capabilities — one aimed at consumers, the other at corporate users. The company also will outline its plans for Hydra, its multiuser version of NT.

Microsoft has responded to user concerns about migration costs with a number of software tools (see chart, page 141).

However, some users say that isn't enough.

Network manager Keith Thibodeaux called the disparity between the 16- and 32-bit environments the "biggest migration pitfall." Thibodeaux, who works at United Companies Lending Corp. in Baton Rouge, La., wouldn't be specific, but he said the move has cost his company millions of dollars.

Microsoft, page 141

Outsourcing watchword: Renegotiate

By Jaikumar Vijayan

THE POSSIBLE dismantling of a \$550 million contract between retailer Sears PLC in the U.K. and Andersen Consulting demonstrates why a growing number of corporations are busy renegotiating their outsourcing agreements these days.

The case highlights the impact that changes in technology, management and business objectives can have on outsourcing

Dataquest study this year of corporations

showed that 53% of information technology outsourcing deals and 73% of business process outsourcing deals were renegotiated or being renegotiated. Of those, more than 17% were renegotiated less than six months

Outsourcing, page 14



By Thomas Hoffman

LETTHE BIDDING BEGIN.

Over the next nine years, General Motors Corp. plans to open up nearly \$1

OUTSOURCING billion in outsourc-CONTRACTS ing deals to Elec-

tronic Data Systems Corp. competitors. EDS is an outsourcing unit that was spun off as a separate company last year.

GM's outsourcing strategy is part of a far-reaching overhaul of its information technology environment (see story, page 12).

In fact, Computerworld has learned that GM already has signed its first non-EDS outsourcing contract, a deal that farms out LAN services in the U.K. to Digital Equipment Corp.

The Digital deal, which analysts placed at less than \$30 million, represents a fraction of the \$4 billion GM spends annually with EDS.

But analysts said vendors such as IBM, Digital and Andersen Consulting will try to leverage such smaller contracts into

GM, page 12

Tackling TCO in the trenches

IS manager Brian Jaffe rolled up his sleeves to look at which practices can cut total cost of ownership of desktop PCs

icrosoft and other vendors at this week's Comdex/Fall '97 are touting wares that supposedly reduce the total cost of ownership (TCO) of the hodgepodge of PCs in your organization. The gurus agree that TCO can be cut by about 15% by employing "best practices" such as enforcing standards and implementing desktop management technologies.

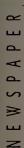
We asked IS manager Brian Jaffe to identify which TCO-slicing recommendations can really snip a few bucks and which ones are just wishful thinking.

Managing, page 93

Exchange 5.5 lets users consolidate mail servers. Barb Cole-Gomolski, page 1 - Catch the Windows CE 2.0 buzz. Kim Girard,

the Web. Page 106

- **Speak up!** 1998 will be the year of speech-recognition-enabled software. Gordon Mah Ung, page 17



Hughes Defense Communication honors Gateway 2000 with "Supplier Excellence Award"

Ocean Spray names Gateway 2000 supplier of the year.

Union Pacific names Gateway 2000 supplier of the year. full sream ahead for Country three and a the first

UPFRONT

The new legacy

n albatross. A tired legacy. A big, expensive, overly complex computing platform that no longer inspires innovation.

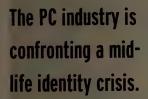
Are we talking mainframe here? No, personal computer. As the industry gathers in Las Vegas this week to celebrate all things PC, it confronts what is in effect a midlife iden-

tity crisis. The PC industry has settled into the same kind of boredom-and-consolidation phase that hit the mainframe market in the late '80s. Consider the following:

■The hardware business is in an ongoing cycle of buyouts and bankruptcies. Differentiation is based almost solely on price and service. No major new PC maker has hit the scene in 10 years.

■Software talent has deserted the PC platform. The companies that defined the

desktop — Lotus, Ashton-Tate, Borland, WordPerfect — are either out of business or into something else. The most innovative new software companies — Netscape, Yahoo, JavaSoft — don't care if you run their products on a PC or a toaster.



■The PC industry "thought leaders" are repositioning. Esther
Dyson's PC Forum conference
hasn't been about PCs for years.
PC publications are recasting themselves as information systems or
Internet journals, so little is there

left of interest in the desktop.

■The idea of downsizing mainframes to networks of PCs — so popular four or five years ago — turned out to be dumb. The client/server concept is under attack as performance and manageability problems overwhelm hardware cost savings.

To those who remember the cockiness of the early PC pioneers, this turn of events is ironic. The PC industry has lapsed into listlessness while the big-system concept has staged somewhat of a comeback.

Comdex attendees may note that the computer industry is moving beyond the PC, whose limitations are becoming all too clear.

Paul Gillin, Editor Internet: paul_gillin@cw.com

NT Workstation luring users

By Laura Di Dio

A RANDOM polling of IS managers indicates that Windows composite NT Workstation migration is 98 at heating up, thanks to declining ple of hardware costs and a big push memby Microsoft Corp. to

STRATEGIES

ease the upgrade path.

Although the move to the 32-bit Windows NT Workstation platform is accelerating, it won't displace Windows 95 as the dominant operating system for at least four years, analysts and Microsoft executives said.

Still, NT Workstation's superior security (see related story, page 28) and automated management capabilities are combining with a robust Zero Administration Kit and support for a wider array of software drivers to make NT Workstation more attractive as a mainstream operating system.

OS LEAPING

In interviews last week with 13 Fortune 1,000 corporations, information systems managers attributed growing interest in NT Workstation to the rapid dissipation of traditional hindrances, such as the decline in RAM, storage and overall PC costs.

Although 80% of companies still use 16-bit applications that run on Windows 95 and legacy Windows 3.1 and DOS operating systems, half the corporate users interviewed plan to skip Windows 98 entirely.

"Chances are very good that we'll bypass Windows 98 and go directly to Windows NT Workstation," said Keith Thibodeaux, a network manager at United Companies Lending Corp. in Baton Rouge, La. "We did a cost comparison between Windows 98 and [NT Workstation] a couple of months ago. The price of memory is no longer a factor;

32M bytes of RAM is now about \$79," Thibodeaux said.

Users cited more-robust security and management capabilities as the most compelling reasons to leapfrog Windows 95 or 98 in favor of Windows NT Workstation.

"The Zero Administration ef-

forts are crucial, and Microsoft is putting a lot more energy into [NT Workstation] management. With Windows 95, instead of Zero Admin, we have 100% administration," Thibodeaux said.

Martin McAdam, general manager of international sales and marketing at An Post, the Irish national Postal Service in Dublin, said it decided a year ago to skip Windows 95. "[NT Workstation] is more robust and C2-certified for security. Windows 95 has no security to speak of," McAdam said. He added

NT migration, page 139

Trade shows have the edge

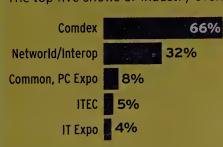
More than ever, users are looking to trade shows for information about IT, despite tight budgets and cheaper options, such as searching the World Wide Web.

An exclusive Computerworld survey of 103 information systems employees found that 64% are attending the same number of trade shows as last year, but 27% said they are attending even more shows and conferences.

Comdex Snapshont

It's show time

The top five shows or industry events



Base: 234 respondents; multiple responses allowed

Source: Computerworld Marketview Survey

Users also said their budgets for such travel and training are slowly creeping up. But respondents were split on whether regional or national shows provide more bang for the buck.

A whopping 75% said the availability of fast data from the Internet hasn't altered their plans to attend trade shows.

— Tim Quellette

Morphing the PC model Shifts in PC buying patterns, such as the move to

hifts in PC buying patterns, such as the move to direct sales, are evident from interviews with experienced PC buyers. They told us what really matters to

them is how well their vendors know them, whether a vendor can deliver dozens of identically configured PCs and the fine balance between price and support.

Buyer's Guide, page 101



Exchange 5.5 consolidates servers

By Barb Cole-Gomolski

USERS MOVING to Microsoft Corp.'s Exchange 5.5 are touting the program's ability to ease administration by consolidating electronic-mail servers.

Slated for release this week at Comdex/Fall '97, the upgrade also lifts the 16G-byte limit on server storage, which made it hard to support more than 500 end users per server, users said. Now, Exchange sites can boost the scalability of their servers up to a few thousand per server by adding more disk

capacity, users said.

The upgrade also has improved Internet hooks. Specifically, it supports the Lightweight Directory Access Protocol for accessing directory information over the Internet and the Internet Message Access Protocol, which gives users more flexibility in the way they access their E-mail.

"Fewer servers means lower cost of ownership," said Marion Weiler, senior messaging technologist at Chevron Information Technology Co. in San Ramon, Calif. (see related story, page (3). The oil company has about 27,000 Exchange seats. To date, it has been able to ran as many as 700 users per server but the average has been about 500 users per server, Wester said.

In addition to fewer boxes to manage users said eliminating servers would streamline software upgrades and make it easier to manage the entire messaging network from a central point.

Analysts were skeptical, however, that simply reducing the Exchange, page for

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we'll put you in touch with one of our sales representatives. They'll be happy to answer all your questions. Of course, you could also talk to our friends at Union Pacific, Ocean Spray, Hughes Defense Communication...





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OS, application support trail NT clustering systems

By Jaikumar Vijayan

second-tier vendors are taking the lead when it comes to delivering Windows NT systems that scale to eight processors.

But user response is likely to be muted for the moment because of lingering questions about NT's ability to scale past four processors.

"Part of the appeal of [technologies] like these is it gives users the assurance that they have the headroom to grow if they wanted to," said James Garden, an analyst at Technology Business Research, Inc. in Hampton, N.H.

But few are likely to make the move to eight-way systems until full-fledged operating system and application support is available, he added.

EIGHT-WAY ANNOUNCEMENTS

This week, Data General Corp. and NCR Corp. will both unveil eight-way symmetrical multiprocessing systems based on Intel Corp.'s Pentium Pro chip and running Windows NT.

DG's Aviion 8600 supports up to eight 200-MHz Pentium Pro chips, up to 8M bytes of memory and starts at about \$55,000 for an eight-way system. NCR's 4380 server supports up to 8G bytes of memory, up to 108G bytes of storage and starts at \$60,000 for an eight-way system.

The announcements put both companies among the forerunners in the race to bring new scalable technologies to the NT market. Market leaders such as Compaq Computer Corp. and Hewlett-Packard Co. are also working on delivering similar capabilities — but neither has a product out yet.

"One of the main reasons we like it is the ability to go eightway if we need to scale up our application," said Russ Pine, manager of networks and telecommunications at H&R Block in Kansas City, Mo. □



Cabletron tools to aid warehouse monitoring

By Patrick Dryden

seeking to extend network troubleshooting beyond fault management, Cabletron Systems, Inc. and nearly a dozen other vendors this week will launch network-oriented data warehouse software designed with service levels in mind.

"We need this to build troubleshooting expertise that won't walk out the door and to establish credibility with our users," said Cabletron user Bryan Ruhf, manager of the consolidated network operation center that now controls services for 20 agencies of the state of Michigan in Lansing.

Unlike the proprietary "knowledge base" for Spectrum, Cabletron's distributed network manager, the storehouse adheres to open standards for databases. More users could benefit from Spectrum Data Warehouse, which begins beta testing now and is expected to ship next quarter.

The storehouse takes raw statistics from Spectrum and diverse monitoring sources and cleans and presents information to data mining and reporting tools. Cabletron and partners such as Optimal Networks Corp. in Palo Alto, Calif., will provide tools tailored for tracking network performance and usage.

Ruhf said he needs to store details about the state's networks and responses to problems. That will help new hires get up to speed faster, which Ruhf said is necessary because operators often take their experience to the higher-paying private sector.

Because the agencies are asking him "to prove what the network is doing and if we're living up to our promises," Spectrum Data Warehouse will provide a report card, Ruhf said. Because the data is accessible through a standard interface, the agencies can "use whatever tool they want to extract information and make sure we're not blowing smoke at them," he said. □

Jim Martin named president, CEO of Computerworld, Inc.

JIM MARTIN has been named president and CEO of Computerworld, Inc.

Martin, 47, was previously CEO of sister company InfoWorld Media Group in San Mateo, Calif. He is a 13-year veteran of International Data Group, Inc., Computerworld's parent company, and has 15 years of hightechnology lishing experience. Martin previously was publisher of

PC World, Mac-world and Publish magazines.

While at *Macworld*, Martin created International Data Group's first central resource for skills transfer among global

product lines. The concept has since been adopted across the company. He is on the operating

boards of many IDG businesses, including Computerworld, IDG Books, GamePro Media Group and CIO Communications.



Year Award.

Martin previously worked at Ziff-Davis Publishing and the New York Times Company Magazines Group. □



Jim Martin is a 13year veteran of International Data Group, inc.

Clarification

A comment by Oracle Corp. President Ray Lane in an Oct. 6 interview was edited and could be misinterpreted. Lane's full comment was: "[O]ur sales force is kind of like Willie Sutton: They go where the money is. If you want to make your quota, you sell big database deals or big applications deals. Tools are not a big deal."

Corrections

Because of a production error, the Nov. 10 stock tables were for the wrong date. The information should be ignored.

Due to a reporting error in the article "SGI results worse than expected: McCracken out, layoffs planned," [CW, Nov. 3], a paragraph incorrectly stated that SGI acquired Cray Computer Corp. SGI acquired Cray Research, Inc.

HE FIFTH WAVE BY RICH TENNANT



F-mail Rich Tennant at the swave @tiac.net

Sun pushes application consolidation

▶ Move to big servers could mean big savings

By Jaikumar Vijayan

this week will launch a program designed to help corporations consolidate applications spread across many Unix systems onto fewer big Sun servers.

The program was designed to appeal to a growing number of organizations to slash hardware and management costs by aggregating and recentralizing their distributed servers.

Under the Server Consolidation Program, Sun representatives will visit a client's site, assess how servers and applications could be consolidated, start a pilot project, then roll out a more broad-based consolidation later. The program also provides for ongoing asset management to track server utilization.

SAVING MONEY

"Consolidating to large platforms can lead to dramatically reduced costs" in acquisition, support and management, said John Webster, an analyst at The Yankee Group in Boston.

Terry Cieslak, chief technology officer at May & Speh in Downers Grove, Ill., estimates that his company will save about

half a million dollars in the next five years through server consolidation.

The company, which provides database and information management services to corporations, is replacing three six-processor Hewlett-Packard Co. Unix enterprise servers with one of Sun's highest-end Star-fire servers

"Everything can now be managed from a single console. ... The connectivity is a lot better, you can share peripherals, technical people find it easier to support a single machine, and the performance is also better," Cieslak said.

Consolidating servers also

makes it easier to perform tasks such as tape backup, as well as providing adequate disaster recovery and security, said David Krauthamer, MIS manager at Parker Hannifin Corp. in Rohnert Park, Calif.

"The proliferation of servers in the enterprise is causing a management and security nightmare. Consolidation is one way to bring a semblance of control," he said.

Sun is leading its consolidation charge with its high-end Ultra Enterprise 10000 servers, which can support up to 32 processors. The systems can be internally partitioned into as many as eight separate systems, each with four or more processors. In theory, that will let users run applications from eight servers inside the same Sun box while dedicating the same number of processors to each.

Other vendors, including HP, IBM and Digital Equipment Corp., offer similar scalability and availability on single systems, analysts said.

All those vendors are targeting the consolidation market with such hardware, but so far none has in place a formal program such as the one

Why companies are consolidating their servers:

- To lower costs
- To ease manageability and administration
- To make capacity planning easier
- For easier support
- To improve security and disaster recovery capabilities

Sun is announcing.

IBM is developing a program around server consolidation that is to be announced next year.

That isn't stopping Kemper National Insurance Co. in Chicago, which recently consolidated multiple IBM RS/6000s into an IBM SP parallel processing system.

"We saw a rapid expansion of the number of RS/6000 systems we were going to need," said Dennis Dunlap, Kemper's manager of MVS/Unix system software. "The timing was good to install an SP and take a 'LAN in the can' approach" for its current needs and future data warehouses, he said. \(\sigma\)

Senior Editor Tim Ouellette contributed to this story.

Nader confab airs monopolistic gripes; Microsoft calls event 'kangaroo court'

By Carol Sliwa
WASHINGTON

COMPUTER industry luminaries gathered at a Ralph Nadersponsored conference here last week to air concerns that Microsoft Corp. will transform its grip on the software industry into control of the Internet.

Charging that the Redmond, Wash.-based software giant freezes out and intimidates competitors, the roster of highprofile speakers who attended

the "Appraising Microsoft and Its Global Strategy" conference accused the company of hampering consumers' right to choose.

For example, Scott McNealy, CEO at rival Sun Microsystems, Inc., said Microsoft effectively locks in customers by making it impossible for competitors to discover the secretly created, arcane details in its software code that can cause a computer to crash if altered even slightly.

"Do we want all the great engineers in Redmond driving the Web technologies, or do we want all the great engineers on the planet driving?" McNealy asked.

In his summary remarks, consumer advocate Ralph Nader said, "The company's monopolistic tactics close off alternative technological paths, limit inno-

vation and assure that consumers will pay monopoly rents to Microsoft." He also said Microsoft's "rapid amalgamation of economic power translates into a disturbing concentration of political power."

Antitrust attorney Gary Reback, who has represented several companies pushing to have Microsoft investigated for monopolistic activity, went a step further. He said Microsoft wants to "extend its monopoly" to Internet content through exclusive

deals with providers, as well as control the access points through its forays into broadcast television, cable and Internetenabled devices.

"Microsoft is using the same old dirty tricks to try to close the only real portal that we have to the Internet: the desktop," Reback said.

NO-SHOW

"The conference

makes no pretense

at objective ... or

balanced treatment

of the issues."

- Robert Herbold

Notably absent, Microsoft rebuffed its invitation to what it called a "kangaroo court." It instead had employees respond with company position papers while a small group of supporters handed out buttons that proclaimed "Ralph Nader doesn't speak for ME!"

The five-page missive from Microsoft Executive Vice President Robert Herbold called it "regrettable" that Nader's group aligned itself "with a small band of Microsoft's detractors, whose apparent goal is to enlist the government's assistance in their efforts to compete with Microsoft."

A typed response from Nader described the conference as "a genuine attempt to facilitate debate about how the information economy should be constructed."

"I'm really amused by Microsoft more than angered," Nader said. "Its techniques are almost sophomoric. Here are these tough, superrich, aggressive, dominant guys, and they're backing away. If their arguments are so compelling, why don't they want to engage?"

The consumer activist said he intends to stay involved in the issue "until it reaches a self-driven momentum." Nader said the likely next step will be more detailed presentations of breakout topics at seminars and over cable television.

"There needs in the future to be more specific investigation of Microsoft practices. Together, we must begin a serious discussion of specific courses of action and remedies for the various problems identified at the conference," Nader said.

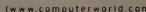
A panel of software developers and other NT suppliers and trainers also held a news conference in defense of Microsoft, claiming it encourages rather than stifles innovation.



Playing the GAME

icrosoft, a Capitol Hill no-show as recently as 1990, is now a legitimate Beltway player. And not for nothing: Recent laws and rulings stand to save the company millions and to facilitate its embrace of the globe — and points beyond. But you've got to watch your back in Washington; Microsoft's enemies have hired guns of their own. This week, we listen as Microsoft raises its lobbying voice.

in Depth, page 172





From billboards to airplane banners, for attention. Careers, page 114.

Aid groups hope intranets will promote peace and aggressive recruiters will do anything replace the Information infrastructure in war-torn Bosnia-Herzegovina. The Internet, page 57.

In this issue

NEWS

- Users hoard their know-how for selfdefense, which spells doom for most knowledge management applications.
- Oracle replaces database development tool with a less work-intensive version.
- Users scrutinize Sun as it bids to become the keeper of the Java standard.
- **GM CIO aims** to upgrade IT, reduce expenses and build IS structure at the world's largest corporation.

OPINION

- Self-deception is the surest way to business failure, even when bad IS looks like the culprit, Michael Schrage charges.
- 98 Booth bimbos hurt the cause of women in IS, but at Comdex there's no shortage of flesh, Laura DiDio finds.
- Ban information, forget knowledge action is still the name of the game, Peter Keen writes.

TECHNICAL SECTIONS

CORPORATE STRATEGIES

- Mercedes launches "most cost-efficient" U.S. plant by outsourcing IS.
- Farm co-op harvests profits, spinning off IS group to sell services to others.
- **CEO demands** business-process automation as part of cost-cutting at Bristol-Myers Squibb.

THE INTERNET

- Intranet ties mutual fund companies to global financial services organization.
- Internet calling saves up to 90% internationally, but large users hold back.

THE ENTERPRISE NETWORK

- Users forge their own migration path from CC: Mail to Notes, calling Lotus thois weak.
- Simple tools fulfill user needs when management platforms are overkill.

- IBM pitches object-oriented middleware as a cure-all, but users want proof.
- Java vendors push spec to standardize thin clients and fight Microsoft.
- Web tool presents a challenge, but delivers the goods after a learning curve.

SERVERS & PCs

- Portable devices bring cachet, but which are cool, and which passe?
- **New CD format promises** enormous benefits, but only if vendors reach standards agreement.

DATA WAREHOUSING

- Users applaud consolidation among data warehouse vendors.
- Allegiance Healthcare grows data warehouse with R/3, in-house talent.

FEATURES

MANAGING

IS manager tackles cost of ownership and finds out how to really save.

IN DEPTH

Microsoft lobbies in Washington, garnering advantages, but also enemies.

BUYER'S GUIDE

- IT managers find ways to take advantage of price wars as direct and indirect vendors battle.
- Online PC buying gives IS managers time to shop on their own terms.

CAREERS

Skills survey reveals that all top skills are scarce and everything has a premium.

ETC.

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Tivoli makes good on TME support promise

By Patrick Dryden Austin, Texas

THE QUANTITY and quality of support for Tivoli Management Environment (TME) 10, which earlier this year came under fire from some users, has improved as promised, users said.

But Tivoli still is having trouble finding and training TME experts, and users say support hasn't improved as much as Tivoli claims.

But enterprise users may get more support as the result of a business partnering program Tivoli Systems, Inc. launched last week at it's second annual developers conference at corporate headquarters here.

Tivoli also is rustling up systems integrators, service providers and value-added resellers to create a broad support infrastructure by the middle of next year to move TME 10 software to small and midsize businesses, said Frank Moss, Tivoli's CEO.

The IBM management software division is fighting Computer Associates International, Inc. for the lead in the systems management market, which could reach \$18 billion by 2001.

Support has been a stumbling block, however.

In May, Moss said support demands by key enterprise users forced Tivoli to postpone the rollout of a simpler form of TME 10. That package will comprise the basic framework plus five or six applications, such as system monitoring, inventory and software distribution.

Support for enterprise users began to catch up in June and is adequate now, "180 degrees different today from the beginning of the year," Moss said.

But the degree of adequacy is

"It's not fixed yet," said Don Whitfield, a vice president at NationsBank Corp. "Tivoli won't get there until all the people hired this year get experience."

Deployment of TME 10 to hundreds of the bank's Novell, Inc. NetWare servers is on hold until someone figures out how to stop Tivoli's NetWare Loadable Module from crashing the servers when it unloads, he said.

Finding someone with broad knowledge "to deal with quirks that pop up on so many different platforms" is difficult, Whitfield said. "We must be realistic about what's possible, but we had better see some significant results from these changes in six months."

The support situation "hasn't improved as much as Tivoli would like you to believe," said Ray Paquet, a research director at Gartner Group, Inc. in Stamford, Conn. "Our clients tell us they still face a serious support and service issue," he said.

Longtime Tivoli users such as Delmarva Power & Light Co. suffered "horrendous" support after IBM acquired Tivoli, said Blaine Boyles, a project systems programmer at the utility in Newark, Del.

Response improved greatly over the summer, Boyles said. Now he gets reasonable answers within two days by sending electronic mail to bypass firstlevel support and referrals, he

SUPPORT REPORT

How Tivoli is improving support for TME 10

managem ent software					
So far:					
New hires	Added 130 consultants				
Mentor program	Teamed trainees with senior consultants and architects to get field experience				
Business partners	Defined sales and support program for 50 service providers				
Still to come:					
Simpler deployment	New version of Tivoli Implementation Methodology in January				
More training	Intensive three-week class in February				
Certification	Tivoli Certified Consultant program				



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KNOWLEDGE MANAGEMENT

Users loathe to share their know-how

By Barb Cole-Gomolski

SHARING NICELY is apparently a skill that many of us don't practice in the workplace.

New research and interviews with IS managers who have deployed specialized groupware, called knowledge management, show that employees' desire to hoard their own knowhow is the biggest hurdle companies face in deploying these collaborative applications.

The idea behind knowledge management is to stockpile workers' knowledge and make it accessible to others via a searchable application. Such applications can help companies make better business decisions and improve customer service.

"People are always the problem," said Jeff Held, a partner in the center for technology enablement at Ernst & Young LLP in Vienna, Va. Ernst & Young has a knowledge management application built on its Lotus Development Corp. Notes network. "You can talk about the benefits of knowledge manage-

How to get employees behind knowledge management:

- ▶ Make the business benefit of the knowledge management application clear
- ► Reward workers who contribute their knowledge
- ► Create a corporate culture in which workers are encouraged to share information
- ► Ensure that the knowledge management application is user-friendly
- ► Involve users in design of application

Source: Delphi Consulting Group, Boston

ment until you're blue, but workers won't buy into it unless it benefits them," Held said.

And it can be hard to clearly explain the benefits of knowledge management to end users, several information systems managers said. In the absence of evidence that it is worth their time, workers will resist the application.

"We have come from an organizational environment in which knowledge is power, hoarded and wielded for private gain," said Hadley Reynolds, a research director at Delphi Group, Inc. in Boston. A survey released earlier this month by Delphi showed that corporate culture was cited by 53% of respondents as being the biggest obstacle to deploying knowledge management applications.

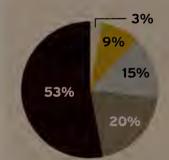
"We don't share very nicely, and I don't really know what to do about it" said an IS manager at a large oil company who watched a knowledge management application built on Notes lose favor with workers after the mastermind of the application left the company.

John McFadden, senior vice president of information and technology at The Chase Man-

sold more products and services. User support was strong because they were heavily involved in the development of the application, McFadden said. Account managers also had a clear understanding of how the application would enable them to more effectively do their jobs,

Keeping the application simple seems to help, too. Held said that Ernst & Young's skills data-

Biggest obstacles to knowledge management



- Corporate culture
- Immaturity of technology
- Immaturity of knowledgemanagement industry
- Cost
- Lack of need

Source: Delphi Consulting Group, Boston

Base: 650 IT professionals

hattan Bank Corp. in New York, spearheaded a successful knowledge management application designed to help account managers deliver better service to customers, which meant they

base — a precursor to the current knowledge management system — became outdated because workers refused to fill out an exhaustive array of electronic forms.□

Planning blunts Web traffic spikes

By Sharon Machlis

WHETHER THE causes are plunging stock prices, a hot murder trial or the death of a

princess, information systems executives who oversee popular World Wide Web sites are grappling with how to handle huge spikes in Internet traffic.

It is, they say, one of the "problems" that come with success. "I love hearing about too much traffic." said Chris Stevens, an analyst at Aberdeen Group,

Time's Vicki Zilaitis

taps backup servers to handle more hits

net is the CB radio of the '90s."

Web sites can add servers, boost bandwidth and spread the load by mirroring sites, depending on where bottlenecks arise.

> At Court TV, where traffic hit an all-time high during the Louise Woodward murder trial in Massachusetts, information technology executives first calculated how much traffic the site could handle. "We had never asked that question before," said Rob Golden,

senior vice presi-Inc. in Boston. "If there's no dent of business development at traffic, that suggests the Inter- the cable network in New York.

The company discovered it had twice the capacity of a previous peak load, but it arranged with its Internet service provider to temporarily double that server capacity.

"I wasn't even sure if that would be enough," Golden said. But although there were some delays in page loading times, the site stayed up, he said.

Time, Inc.'s Pathfinder site got its first taste of a surfer flood two years ago when the 1995 Sports Illustrated swimsuit issue was released.

"It's huge for us," said Vicki Zilaitis, director of technology at Time, Inc. New Media in New York. After that edition and a massive traffic increase during the O. J. Simpson murder trial, site architects realized they needed extra bandwidth, standby server capacity and a more modular approach to manage the occasional onslaught.

Today, Time hooks up backup servers, usually used for beta testing, as well as a backup T3 line for high-volume days such as when the swimsuit issue surfaces on newsstands.

"You're going to have to overengineer," said Fred McClimans, CEO at consulting firm Current Analysis, Inc. in Ster-

Proxy servers to the rescue

Financial sites that can't afford to have regional Internet outages bring them down can pay to have connections to two different

But during last month's one-day 7% stock market drop, few brokerages could offer instant access for their customers by Internet - or by telephone, for that matter.

MSNBC stayed up to provide stock quotes for users in part by reconfiguring its site on the fly, said John Nicol, director of technology at MSNBC on the Internet.

Monitors at the site constantly check server performance. When Wall Street prices started to tank, those monitors "started going red on us," he said.

The IS team responded first by setting up a proxy server, which sent out its own queries for updated stock-price information and then returned that data to individual users. That reduced traffic compared with each user making a separate query out for the data, and it immediately boosted performance 20%.

Later, MSNBC revamped its site so that people logging on to their personalized Web pages with stock quotes weren't making real-time information requests for the latest prices. Instead, users who wanted the most current financials were directed to a single market-watch page. — Sharon Machlis

ling, Va.

To deal with bandwidth issues, companies might want to structure agreements with service providers to use technology such as frame relay, which allows bumping up access levels when traffic soars, he said.

Companies can also consider mirroring their sites at multiple locations.

"Most important, people need to understand who their customers are and where they're accessing from," McClimans

High-volume days, which can be tough to plan for, can offer long-lasting benefits. After usage peaks for major news events at MSNBC, traffic drops but not completely. "We never go back down to where we were before," said John Nicol, director of technology at MSNBC on the Internet. "There are worse problems we could have," Golden added. □

Strategies for handling heavy Web peaks

- Use modular architecture to easily add servers
- Add mirror sites in multiple locations
- Consider technologies such as frame relay that can increase network performance
- Off-load real-time queries with proxy servers or Web
- Negotiate with Internet provider for flexible server capacity

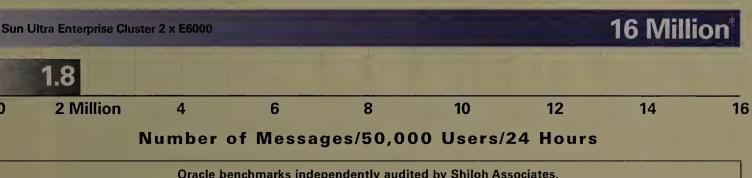
Oracle8 Database Messaging Massacres Microsoft Exchange

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Scalability

The scalability benchmark measures the electronic mail messages per day for 50,000 users.





Oracle benchmarks independently audited by Shiloh Associates.

Microsoft benchmark source: www.microsoft.com/backoffice/scalability/exchange.htm

Oracle Database Messaging

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- Fully mirrored for fail-safe instant recovery from catastrophic failure
- 186 messages per second, 24 hours a day, 7 days a week, non-stop email
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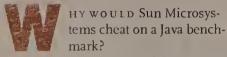
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Sun's thumb on the scale

FRANK HAYES



To get a jump on its rivals? To convince

customers it has the best Java? To take a cheap shot at Microsoft?

Nope. Turns out it was, um, a public service. Sure, that's it — a public service designed to help make even better benchmarks. Sun was just, er, highlighting the

weaknesses of the benchmark test it got caught cheating on. And with Sun's continued, uh, help, those benchmarks will just keep getting better.

That, believe it or not, is Sun's latest official story as to why it jerry-rigged a test system to give blowout results on Caffeinemark, a Java benchmark developed by a suburban Chicago consulting outfit called Pendragon Software Corp.

The explanation might be a little more

credible if Sun's SunSoft division had started out with that story four weeks ago. Back then, SunSoft claimed its beta version of Java for Solaris 2.6, Sun's ver-

> sion of Unix, ran 50% faster than Java on Windows NT. The proof? Caffeinemark results that showed a score 50 times higher than NT's.

Then, when Pendragon's

Why would SunSoft cheat on a Java benchmark?

own benchmark engineers proved that the Solaris Java beta had been rigged to blitz through the Caffeinemark logic test, SunSoft managers denied there was any Caffeinemark-specific optimization.

When Pendragon's people found 600 bytes of their benchmark's code in the

Solaris Java beta, SunSoft managers still denied it — and said Microsoft had put Pendragon up to claiming SunSoft had cheated.

A week ago last Friday, the true truth came out: SunSoft was just demonstrating a weakness of the Caffeinemark for the good of the industry.

At least that's what Larry Weber, the SunSoft division's general manager, told me. He also said it wasn't really SunSoft that created the Caffeinemark-cheating code. That was the work of Sun's chip group, he said.

SunSoft, by my count, has at least four different stories on why it did what it did. But so far, nobody has been able to tell me what I really want to know: What pos-

sible benefit could there be for customers from SunSoft's cheating on a Java benchmark?

I admit I'm not a fan of benchmarks, especially the publicly available kind. I don't trust them. They don't accurately reflect what corporate IS shops use products for.

They're hard to develop, and they're easy to cheat.

But every benchmark is built on a very good idea: that IS product decisions should be based on requirements and testing, not just marketing hype and popularity.

Trouble is, that's exactly what vendors of popular products with a lot of marketing hype don't want. So they cheat on the benchmarks. Sometimes it's just a matter of tweaking. Occasionally, it's the kind of clumsy fakery that SunSoft built in to its Solaris Java beta.

Either way, it's a lie — and a colossal waste of time and effort.

Then again, maybe it does offer some customer value after all. Maybe it tells us what a vendor thinks is really important to deliver to customers.

And apparently, SunSoft believes the biggest benefit it can deliver is a rigged demo.

IRS update. Maybe the tide has turned on the Internal Revenue Service's efforts to go rooting through source code ["Frankly Speaking," Oct. 6].

The new tax bill passed by the U.S. House of Representatives earlier this month makes it harder for the IRS to get source code, but it still lets the agency go after it if the IRS can prove there's no other way to perform an accurate audit. The Senate will take up the bill next year. \square

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

SHORTS

Aging software

At the Year 2000 Conference and Exhibition this week in Boston, Princeton Softech, Inc. in Princeton, N.J., will introduce Ager 2000, a tool designed to add "date aging" data to files so users can test their year 2000 fixes. The system, which will begin shipping in January, starts at \$40,000 and works with IBM MVS files.

IBM updates OS/390

With Version 2, Release 4 of the OS/390 mainframe operating system out the door, IBM is prepping Version 2, Release 5 for delivery next March. The new version includes solid TCP/IP support and improved support for mainframe clustering. It also adds more security to the built-in Internet firewall and supports IBM's Component Broker middleware to run object-oriented software on mainframes, IBM officials said.

HP buys NT management tool

Hewlett-Packard Co. last week acquired NuView, Inc. in Houston. The start-up's software can centrally manage multiple servers or workstations running Windows NT. HP will sell the tool, ManageX, as part of its OpenView line and form a new business unit to help customers manage NT-based systems and applications.

'net to overhaul procurement

Internet-based purchasing will "overhaul inefficient corporate procurement practices," according to a study by Forrester Research, Inc. in Cambridge, Mass. By 1999, Internet auctions and requests for proposals will drive a second wave of Internet purchasing, the study concludes. One other impact: Users will migrate their electronic data interchange systems to Internet alternatives

Sharp ships handheld line

Sharp Electronics Co. this week launched Mobilon, a line of handheld PCs that uses Microsoft Corp.'s Windows CE 2.0 operating system. The handhelds feature a color screen, a digital camera card option, an audio record feature for memos, a Web browser and a built-in 33.6K/9.6K bit/sec. modem. The Mobilon HC-4000, HC-4100 and HC-4500 cost \$599, \$699 and \$990, respectively.

SAP aligns with SAS Institute

Data warehousing vendors continue to line up outside the doors of SAP R/3 users. The latest is SAS Institute, Inc. in Cary, N.C., which this week is expected to announce plans to more tightly integrate its data warehousing and analysis products with SAP AG's business applications. Meanwhile, Palo Alto, Calif.-based Hewlett-Packard Co. in early December plans to detail enhanced support for warehousing SAP data as part of its OpenWarehouse suite.

Informix to restate financials

Informix Software, Inc. in Menlo Park, Calif., this week will finally restate its financial results dating back to 1995 and reveal a product repackaging aimed at simplifying its software lineup [CW, Dec. 13]. Robert Finocchio Jr., who took over as CEO of the beleaguered database vendor in July, is scheduled to meet with financial analysts in New York on Tuesday to discuss both issues.

56K fight

Rockwell International Corp.'s Semiconductor Systems division has sued Bay Networks, Inc. in federal court in Los Angeles, claiming that unspecified actions by the Santa Clara, Calif.-based internetworking vendor violat-

ed its license for Rockwell's K56flex modem technology. Bay Networks, which also licenses competing 56K bit/sec. technology from 3Com Corp., says it is "100% in compliance" with its license.

Mainframe-to-Java

Computer Network Technology Corp. in Minneapolis next month plans to unveil a new Web-to-host package called Cool 3270. It will turn mainframe-based 3270 data streams into Java output that can be read by any Java browser. Pricing for Cool 3270 wasn't available.

Notes antivirus tool ships

Symantec Corp. in Cupertino, Calif., recently shipped a beta version of its forthcoming Norton AntiVirus for Lotus Notes, a new antivirus package that scans messages and attachments in real time to find viruses and macro viruses in Microsoft Word and Excel documents. It runs on all Lotus Notes 4.5 servers using Windows NT 3.51 or 4.0. The software will ship next month for \$795 per server in a 25-user version.

Single intranet sign-on

Platinum Technology, Inc. in Oakbrook Terrace, Ill., this week will announce a version of its AutoSecure Single Sign-On software and the beta release of Web Security Management for providing single sign-on to intranets. Pricing for AutoSecure starts at \$125 per user; Web Security Management is due in the first quarter next year.

SHORT TAKES As expected, AT&T named Alan G. Jones as its chief information officer, replacing Ron Ponder, who is leaving to become president and CEO of Beechwood Data Systems, Inc. in Clark, N.J. [CW, Nov. 10]. Jones, 51, had been CIO of AT&T's business and consumer markets.

Oracle to ship spiffed-up Developer/2000

▶ Development tool upgrade promises less manual coding

By Craig Stedman

AFTER MORE THAN a year of beta testing and strategy shifts, Oracle Corp. this week finally plans to ship a less-ornery version of its flagship development tool.

Developer/2000, which builds applications for Oracle databases, is getting spiffed up with expanded drag-and-drop capabilities, object features and other enhancements that are supposed to reduce the manual coding users need to do.

Those are welcome changes for shops that have had to pay through the nose to hire experienced Oracle developers or to give neophyte users crash courses on the database kingpin's proprietary PL/SQL programming language.

WHAT'S NEW IN DEVELOPER/2000

- Expanded set of point-andclick builders
- Wizard technology for automating development
- Object library for storing reusable components
- Unified debugger for threetier applications
- Simplified reporting and charting capabilities

"Customers have been telling Oracle that we need a way to use the product more efficiently, and now they've listened to us," said Donna McConnell, an Oracle tools specialist at Detroit Edison Co. She also is a director of the International Oracle Users Group — Americas.

PL/SQL coding may not go away completely, but Version 2.0 of Developer/2000 should make it easier to build and modify applications, McConnell said.

Detroit Edison is testing the new release and plans to use it after a companion upgrade of Oracle's Designer/2000 database modeler comes out early next year, she added.

Echidna Systems Corp., a systems integrator in Victoria, B.C., is using the beta-test version of Developer/2000 2.0 to build and update geographical data applications for the British Columbia Ministry of Environment, Lands and Parks.

Developer/2000 "has always been a pretty decent product, but it's been hard for first-time users or casual coders to learn," said Thor Heinrichs-Wolpert a consultant and senior technical architect at Echidna. "Now you can get someone who isn't a guru in the tool to build applications for you."

Reducing the need for big teams of experienced PL/SQL coders could help Or-

acle shops cut salary and training costs, Heinrichs-Wolpert added. Oracle developers with PL/SQL skills can command salaries from \$50,000 to \$100,000, or more, he said

Developer/2000 2.0 went into beta testing in September 1996 and was originally due early this year. But Redwood Shores, Calif.-based Oracle put it on hold so it could rush out a pair of interim re-

leases that let users build thin-client applications that mix World Wide Web browsers and application servers.

The new version of Developer/2000 includes automated development wizards and supports point-and-click building of database schemas and SQL queries, Oracle officials said. The tool also is taking some initial steps into the worlds of object technology and code reuse (see chart). Prices start at \$5,995 per user. \square



Sun walks a fine line on Java standards

By Sharon Gaudin

with sun microsystems, Inc. poised to lead the charge to set Java standards, users want assurance that Java's biggest supporter doesn't try to become Java's dictator.

Members of the International Standards Organization (ISO), the global body that oversees high-tech industry standards, are collecting the final vote on Sun's request to be the official submitter for Java. At press time, Sun was one vote short of the needed simple majority.

Sun's bid has drawn fire, especially from its highly vocal rival, Microsoft Corp., because it veers from the usual process of having a consortium of vendors and users act as the official overseer of a standards process.

Because Sun has a large stake in mak-

ing money off Java, critics contend that if the ISO vote is successful, Sun would have far too much control over what is supposed to be an open process.

Dave Spenhoff, director of product marketing at Sun's JavaSoft division, agreed that Sun will be under tight scrutiny. But he said the company is considering some changes based on comments some countries made during the voting process. For example, he said Sun is considering making test suites for Java virtual machines — which are now part of Sun's licensing product — openly available to developers.

That news comes after reports that Sun has been high-handed with some of its major platform developers, allegedly holding the test suite to force developers to turn over their source code for testing



DOJ's Verna Muckies: "We're going to make sure Java stays open"

to Sun — a company that builds and sells its own virtual machine.

"We have to test [virtual machines]," said George Paolini, Java Soft's director of marketing. "We have to make sure every [virtual machine] is compatible so Java

will run equally on all the platforms."

Corporate developers using the various Java tools don't have to license anything from Sun. And a third party does all the testing for 100% Pure Java applications.

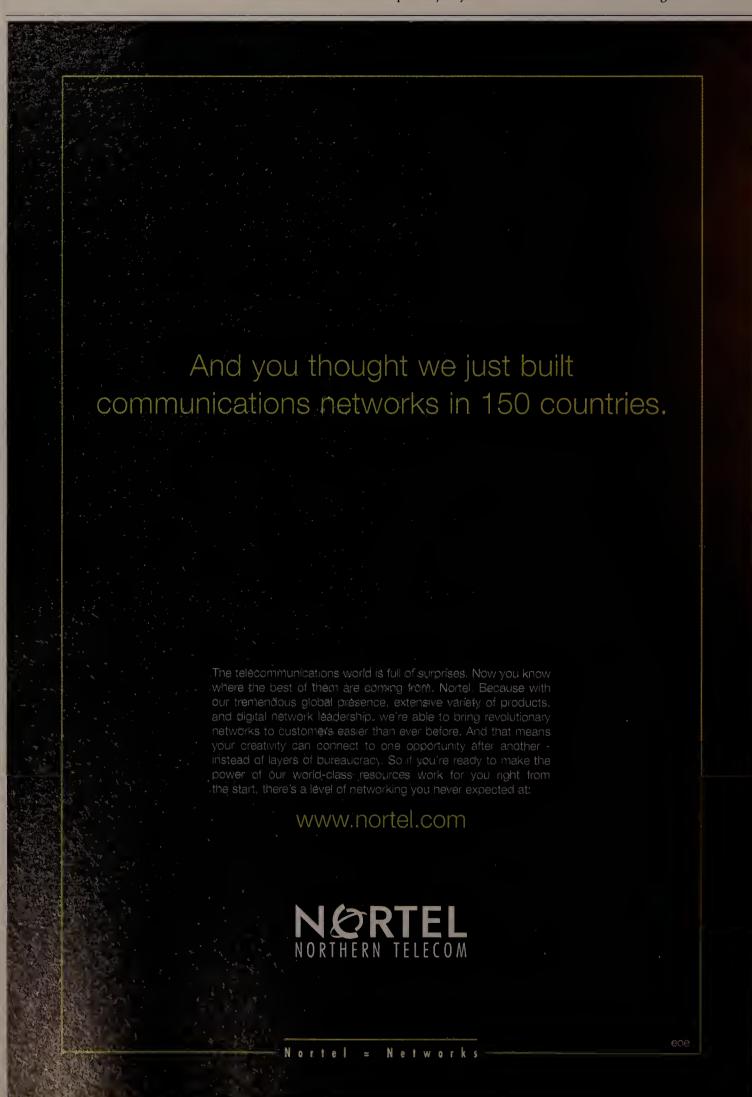
"We're moving to Java because it's an open environment, so we hope it stays that way," said Verna Muckle, director of MIS at the criminal division of the U.S. Department of Justice. Muckle's division is piloting Sun's JavaStation network computer.

'The criminal division is not at all interested in something solely owned by one company. ... While we're piloting, I'm going to watch them, sure. We're going to make sure Java stays open, that [Sun] keep its promises," she said.

"We've been looking at ways to make the process somewhat more open," said Jim Mitchell, vice president of technology and architecture at JavaSoft. "People lose sight that that's why we've been going through this process." Mitchell said Sun is considering giving licensees a vote on any specifications being developed.

That is the kind of thing users and other software vendors will be watching, said Evan Quinn, an analyst at International Data Corp. in San Francisco.

"Sun's getting awarded the big prize," Quinn said. "Sun's got to act carefully. Everybody's going to be watching. If they start lording over this platform, people will back off and maybe even look to [Microsoft]." So far, the U.S. is the only member country, out of 27, to vote against Sun's request. Much of the backlash against Sun was led by Microsoft, which joined the ISO process for the first time soon before the vote and has been accused of trying to derail Java.



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The challenge of a lifetime

➤ Szygenda's mission: Rebuild IS at GM

By Julia King DETROIT

JUST IMAGINE building a fully functional city from the ground up, and you begin to get some idea of Ralph Szygenda's mission as General Motors Corp.'s chief information officer.

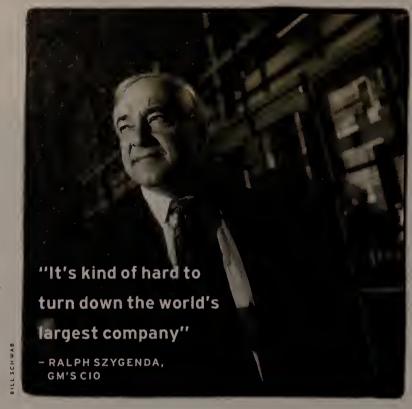
Szygenda was hired in June 1996 from Bell Atlantic Corp. His mandates are to slash GM's \$4 billion annual information systems budget "by hundreds of millions over the next five years;" implement common systems across GM's highly autonomous and somewhat recalcitrant business units; adopt an integrated design and engineering system that will halve newcar cycle times; and, perhaps most important, build an IS leadership infrastructure where none existed before.

Why would anyone want this job?

"I think it's the challenge and the visibility of the challenge," said George Heilmeier, chairman and CEO of Bellcore, one of Bell Atlantic's biggest technology suppliers. Heilmeier is now on GM's six-member technology and scientific advisory committee.

"Let's face it. Most good people like to be No. 1. Ralph is no exception," he said.

"The challenge of starting over from scratch was so overwhelming. It was too much to turn down," said Szygenda, 49, a self-described workaholic who usually puts in 12-hour days at his downtown Detroit office before hitting the treadmill for an



evening workout.

"Plus," he said, "it's kind of hard to turn down the world's largest company."

Szygenda is the mastermind behind GM's ongoing transition to a technologically self-sufficient organization.

Until its 1996 spin-off from GM, Electronic Data Systems Corp. handled virtually all of GM's IS requirements, including strategy and planning.

In his first 18 months on the job, Szygenda has focused heavily on building what he calls an IS leadership infrastructure.

So far, he has hired 35 ClOs for GM's business units and another 100 or so process and technology implementation executives.

Those information technology staffers work in GM's business units, but their job is to drive common processes across

the company. They also act as consultants to business unit ClOs.

With much of the hiring behind him, Szygenda has refocused on technology and implementation. Next year, he said, "is a big execution year. We have determined strategies for every part of the business, and we know where we want to go.

"I have people totally dedicated to each other. So as I chose people, I had to look for people to team," Szygenda said of the hiring process.

TECHNOLOGY FOCUS

But don't get the wrong idea. Szygenda, a mechanical engineer by training, isn't a New Age, touchy-feely CIO who emphasizes people skills over hard-core knowledge of technology.

"He's very focused on the technology," said one longtime IS executive who interviewed for, but didn't land, one of GM's 35 CIO slots. During the interview, the executive said, Szygenda "talked about setting up architectures and picking emerging technologies. I got the impression that Ralph will end up with the largest local-area networks and largest wide-area networks and more PCs than anyone else," he said.

"Ralph plays on both sides. He knows the technology of the business, but he also knows business. That's what makes Ralph unique," Heilmeier said.

As a Bellcore customer, Szygenda was "tough but fair," he added. "Ralph is a sophisticated customer. He knows what

things should cost, how long they should take and how difficult they should be."

GM's three-year to-do list includes implementing off-the-shelf enterprise software across all of GM's finance and human resources operations.

NEW INITIATIVES

Also in the works is a conversion to fully integrated, math-based vehicle development systems. Those systems will enable thousands of GM designers and engineers worldwide to jointly create and test new cars in a completely virtual environment. The idea is to eliminate the time-consuming development and modification of wood and clay models.

GM also has a big data ware-

house initiative under way.

It is culling customer preference and usage information from on-board systems in some GM cars and from its network of more than 8,500 dealerships, which have been linked via an electronic network known as GM Access.

"We're moving from designing a vehicle and hoping a customer will buy it to sensing what a customer wants," Szygenda said.

Taken together, "these are all monstrous changes for GM," especially when you consider the three-year implementation period, Szygenda said. "And we might miss some of them, but I'd rather start off with an aggressive schedule to change the company."

GM revamps its outsourcing

GM's Bob Chaffin:

mines competitive-

ness like the market

"Nothing deter-

on a daily basis"

CONTINUED FROM COVER 1

a front-runner position with GM after the EDS agreement expires in 2006. "Now that other outsourcing vendors know what contracts EDS holds, they're going to do whatever they can to win that business," said Lisa

Maio Ross, an analyst at International Data Corp. in Framingham, Mass.

The beneficiary, of course, is GM. The automaker not only is trying to save money by opening these contracts to competitive bidding, but it also is looking to improve quality, boost service and enhance its technology wherever possible said Rob

possible, said Bob Chaffin, GM's director of information systems finance. "Nothing determines competitiveness like the market on a daily basis," he said.

Chaffin said that beginning next year, about \$220 million worth of information technology services will be on the table. Under the EDS contract, mainframe processing and U.S. telecommunications are off limits, but "everything else is being actively considered," he said.

Chaffin emphasized that GM isn't dissatisfied with EDS. But competing offerings from best-in-class service vendors can help a colossus such as GM become a more efficient company.

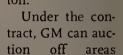
"Our job is to never be satis-

fied, to always look for improvement," Chaffin said.

Analysts said GM is generally pleased with EDS's performance.

But EDS supplies such a broad range of services — every-

thing from help desk to telecommunications support — that there are bound to be "pockets" of dissatisfied customers. And competing vendors will try to exploit those areas, said George Logemann, an analyst at The Yankee Group in Bos-

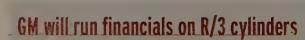


where it is either dissatisfied with EDS, looking for more expertise or seeking lower costs.

Chaffin wouldn't tip his hand as to which operations GM is considering. But he said the company is looking at off-loading pieces of its IT infrastructure and application development

"We'll probably come up with \$500 million to \$600 million worth of candidates from which we'll choose a few hundred million dollars [worth of business] this year," Chaffin said.

GM last month began issuing requests for proposals for next year's contracts. Although Chaffin declined to identify functional areas up for bid, he confirmed that "there are some [requests for proposals] out there" now. □



GM has decided to make use of German engineering.

General Motors last week announced its plans to standardize on SAP AG's R/3 software to run its global financial operations. GM previously had used SAP human resources modules at its Opel plant in Germany and its AC Delco facility in France.

Terms of the deal weren't disclosed.

The move is part of an ongoing effort by GM to cut costs by standardizing on common platforms. The system is expected to help GM reduce its financial operating expenses by deploying common processes throughout its global operations, said Cherri Musser, business services information officer at GM.

GM will begin a phased rollout of the software starting with its automotive assembly and component businesses in Europe and Asia, followed by operations in North America and South America. The new system should be fully deployed by 2002.

— Thomas Hoffman

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eye on outsourcing pacts

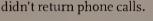
CONTINUED FROM COVER 1

after they were first signed.

In the case of Sears, an information systems centralization effort started by former CEO Liam Strong was reversed by the board following Strong's departure in April, according to a news report from International Data Group's IDG News Service. (IDG is Computerworld's parent company.)

The U.K. office of Andersen

Consulting week said it was reexamining its contract with Sears relation Sears, Roebuck and Co. in the U.S. "The contract cannot stay the same because the synerof scale present in the original contract are no longer there," said Andersen source in the U.K. officials



BREAKING UP IS HARD TO DO

"Changes like these can render original contracts totally invalid," which leads to expensive terminations of deals, said Susan Scrupski, an analyst at Technology & Business Integrators, Inc. in Woodcliff Lake, N.J.

Such moves come as a handful of high-profile failures have begun to highlight the challenges corporations face in making large outsourcing and integration deals work.

For example, earlier this year a 10-year, \$210 million outsourcing deal between Mutual of New York and Computer Sciences Corp. fell apart. The reason: disagreements about the scope and scale of the services to be provided by a joint venture formed by the two companies. Similarly, an ambitious 1995, 50-year agreement between Delta Airlines and AT&T Corp. failed with the breakup of AT&T last year.

Restructuring through renegotiation is one way of pre-empting such conclusions, analysts said.

"Almost 50% of my practice right now deals with formal renegotiations leading to major restructuring of outsourcing agreements," said Dan Mummery, a lawyer at Millbank,

Tweed, Hadley & McCloy in New York. The law firm specializes in IT outsourcing deals.

"Renegotiation mostly is a positive thing — to make deals work better," said Allie Young, an analyst at Dataquest in Westboro, Mass. Consider Farmland Industries, Inc., a \$9.5 billion farmers cooperative in Kansas City, Mo. It recently set up a joint venture called OneSystem

> Group with Ernst & Young LLC to provide IT services back to Farmland.

> Six months into the deal, the companies restructured the arrangement to include another vendor. Systems Management Specialists, to handle data center operations for OneSys-

> The move will save Farmland \$14

million to \$15 million during the next five years in labor and infrastructure costs, said Kent Nunn, chief information officer at Farmland.

"Obviously, there is a tremendous amount of change involved with some of these arrangements," Nunn said.

"For them to work, you need to have a great deal of trust in the relationship you have with your vendor" and have top-level management buy-in, Nunn said. For example, Farmland's deal with Ernst involves both companies keeping an "open book" on each other's financial

UNSPECIFIED EXPECTATIONS

The biggest challenge in making outsourcing relationships work "has to do with unspecified expectations that customers and vendors have when getting into outsourcing arrangements," said Bernie Campbell, CIO at Sonoco Products Co., a \$2.8 billion packaging company in Hartsville, N.C.

Concerns such as those drove Sonoco to add a 400-page document that listed exact business objectives, technology goals, terms and conditions to a 10page desktop outsourcing agreement it recently signed with Entex Information Services in Rye Brook, N.Y.□

Corporations keep close Transaction action

► MasterCard nixes X.25 network in time for holiday shopping season

By Thomas Hoffman

THOSE LONG holiday shopping lines could move a little faster this season, thanks to a new transaction processing network being rolled out by MasterCard International, Inc.

The upgrade of MasterCard's Banknet from an X.25 network to a virtual private network based on frame-relay technology is expected to cut transaction processing times in half.

The Purchase, N.Y., creditcard giant has extended the network to member banks and merchants in the U.S., Canada and Singapore. It already is handling nearly 70% of Master-Card's total transaction volume.

That will be critical to Master-Card and its partners during the holiday shopping season, when point-of-sale transaction voltypically

typically have to upgrade hard-

ware to handle the additional

volumes from Thanksgiving to

Christmas and then under-

utilize the hardware for the next

Now, using AT&T Corp.'s

peak at above normal pe-

three quarters.

VIRTUAL PRIVATE

Louis. "Even if I didn't With its old 56K bit/sec. X.25 save a dime on the new network, network, MasterCard would

[the upgrade] was a smart thing to do because it gave me flexibility," Ahrens said. By utilizing frame relay and

frame-relay services, Master-

Card can order increased band-

width for 35 to 40 days and then

"size it back down" after the

holidays, said Arthur Ahrens,

senior vice president of opera-

tions services at

MasterCard in St.

Asynchronous Transfer Mode technologies from AT&T and its international partners, the network permits MasterCard to create virtual private network "paths" for its members.

Ahrens declined to quantify the project investment or anticipated cost savings. Octavio Marenzi, director of research at Meridien Research, Inc. in Needham, Mass., placed Master-Card's AT&T bill at "hundreds of millions of dollars" annually.

The network will be extended to Latin America, Asia-Pacific, the Middle East and Africa by the end of next year.

40% NETWORK

SET DEVELOPMENTS

- IBM and VeriFone to work on product interoperability
- Developer's guide to be released by those vendors
- by next June
- SET backers to develop new compliance testing program

Vendors address SET product compatibility

By Sharon Machlis

JUST BECAUSE two products both meet Secure Electronic Transaction (SET) specifications doesn't mean they will actually work together.

That concern over potential product incompatibility could mean yet another holdup in SET's adoption, which is under development by major financial firms including Visa International, Inc. and MasterCard International, Inc. as a way to safely conduct credit-card transactions on the Internet.

"The biggest barrier to mass adoption of SET is interoperability," said Ann Culver, product manager at CompuServe Network Services in San Francisco.

GUIDELINES

In response, IBM and Hewlett-Packard Co. subsidiary Veri-Fone, Inc. last week said they launched a program to ensure that their products properly communicate with each other.

The companies also will publish a developers' interoperability guide by June.

Although SET lays out a technical framework, there are different ways of implementing a financial-transaction business

For example, one product could collect more information about a transaction than another; when they attempt to exchange information, the second product might not know how to handle the extra data.

"If your wallet doesn't talk to somebody else's merchant server ... you can't do anything," Culver said. Under SET, consumers would use an "electronic" wallet when making purchases on the World Wide Web.

David Marshak, an electroniccommerce specialist at Patricia Seybold Group in Boston, said he was encouraged that two major vendors decided to work together on compatibility, instead of vying to create their own versions of the standard. □

NET MIX

MasterCard's competitors currently use hybrid networks. Visa International, Inc. in San Mateo, Calif., uses a blend of X.25 and frame relay. American Express Corp. in New York mixes those technologies with pointto-point leased-line connec-

MasterCard's shift away from a capital-intensive network to a virtual network is the wave of the future, analysts said.

Catalog firms and retailers that historically did the bulk of their sales during the holiday period used to "rent" additional hardware to handle the extra transaction processing volumes, said Frank Dzubeck, president of Communication Network Architects in Washington.

Those upgrades are no longer needed now that bandwidth can be upgraded and downgraded when needed, Dzubeck said. "The old world was physical; the new world is virtual," he said.

And by having AT&T manage the network, MasterCard will be able to reduce its administrative costs.

Under the X.25 environment, MasterCard had to manage relationships with more than 50 car-



Farmland's Kent **Nunn: Outsourcing** pacts require a great deal of trust in the vendor



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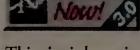


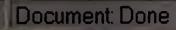
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B

IBM move will give users better handle on network computers

By April Jacobs

OBSERVERS SAY IBM's decision to open up its network computer management software to competitors could be a boon to users who want to manage multiple platforms under a single umbrella.

For example, Mike Prince, chief information officer at Burlington Coat Factory Warehouse, Inc. in Burlington, N.J., said he doesn't have an overall management platform for his 250 network computers but will need one if the company moves ahead with plans to put about 1,200 more network computers at its retail locations nationwide.

Prince uses network computers from Neoware Systems, Inc., formerly HDS Network Systems, in King of Prussia, Pa.

"Our ability to manage our [network computers] as we scale up will be more of an issue. We would welcome good management software, especially if the IBM pack does a good job," Prince said.

IBM's offering would be a breath of fresh air, observers said, because the market is devoid of comprehensive management packages. Software such as Computer Associates International, Inc.'s Unicenter works with Sun Microsystems, Inc.'s JavaStation and Neoware's Neo-Station, but there is no wide-scale software in the network computer market that compares with software such as Hewlett-Packard Co.'s OpenView.

IBM offers a product called Network Station Manager free of charge with its Network Stations. The management software lets network administrators construct a user's privileges on the server as well as manage all user applications from the server. That cuts down on service calls and maintenance. The server-centric network computers require little troubleshooting because of their simplicity.

PARTNERING UP

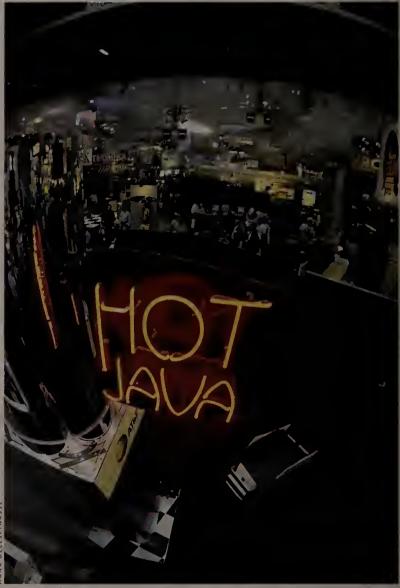
Network Station Manager will be renamed Network Client Manager in its new format, an IBM spokesman said. IBM plans to partner with other network computer vendors to develop application programming interfaces for the software to work with multiple hardware platforms. Network Station Manager now runs on the AS/400, Windows NT servers and the RS/6000.

One of the first vendors to step forward to join IBM is Neoware, which is working with IBM to allow Network Client Manager to manage its NeoStation 500 and its upcoming Neo-Station 200, which will be announced at Comdex/Fall '97.

IBM's server management software will give network computer users better tools to manage hardware and software under a single umbrella, said Neoware Executive Vice President Michael Kantrowitz. Vendor tools now manage only their own network computers.

Jane Wright, an analyst at Meta Group, Inc. in Stamford, Conn., said no other vendor has stepped forward with a server-based management tool to manage multiple platforms for network computers.

"The market is very open to this right now because server management tools in the [network computer] are even more important than in the PC environment because users are so dependent on the server to function," she explained.



Comdex/Fall '97 attendees will be seeking ways to manage network computers running Java on multiple platforms

Handhelds feature bigger screens

By Kim Girard

A NEW GENERATION of heftier handhelds running Microsoft Corp.'s Windows CE 2.0 operating system will be featured at Comdex/Fall '97 this week in Las Vegas.

Hewlett-Packard Co., NEC Corp. and Casio Computer Co. are among the vendors expected this week to unveil machines that feature bigger screens and keyboards.

Those devices are expected to compete at the low end of the mininotebook market, but users and analysts say that is still a couple of years away.

"Eventually, this class of device will represent a large volume of notebooks sold," said Rob Enderle, an analyst at Giga Information Group, a Cambridge, Mass., consultancy.

But Enderle said vendors must first improve display and storage capabilities.

Indeed, many companies aren't ready to take the plunge.

"As a department, we're not supporting them in any way, shape or form," said Gary Coombs, systems manager at Scientific Atlanta, Inc. in Norcross, Ga., which has more than 5,000 employees and uses Dell Computer Corp. laptops.

"They've got a lot of work to do to get user acceptance," said Stanley Dobrowski, supervisor of data processing operations at Bergen County Utilities Authority in Little Ferry, N.J.



The HP 620LX features fullsize output for PowerPoint

Dobrowski said he will stick with his DOS-based HP handheld for now because programming is much simpler than with a Windows CE device. And hanging a larger CE device off his belt would be inconvenient, he said.

One user said he is awaiting an upgrade to Window CE 2.0

but is frustrated by the lack of applications for his HP 320LX.

"One of my pet peeves, where Microsoft needs to get on the stick, is to be more aggressive with software applications," said Robert Kreisler, president of Enterprise Marketing Solutions, a consultancy in Washington Township, N.J., and a member of the New York HP Handheld Users Group.

The lure for users is that the CE devices can handle electronic mail, scheduling and simple document making. They also can be used to synchronize with desktop programs, including Microsoft's Outlook, Word and Excel.

And the latest models, with their color screens and faster processors, are expected to rival Intel Corp.-based mininotebooks — such as Toshiba America Information Systems, Inc.'s Libretto — in performance, but at a much cheaper price.

The HP 620LX costs less than \$1,000, features 16M bytes of RAM, a full-color display and full-size output for PowerPoint presentations. □

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Spotlight shines on speech recognition

By Gordon Mah Ung

IF 1997 1S THE year of World Wide Webenabled software, 1998 will be the year of speech recognition-enabled software, some industry observers said.

Everything from electronic-mail clients to browsers now feature or will feature some form of speech recognition in the upcoming year. Voice recognition and text-to-speech systems are expected to be one of the highlighted technologies at this week's Comdex/Fall '97 show in Las Vegas.

But are advances in speech-to-text and continuous speech recognition dictation likely to become ubiquitous on corporate desktops anytime soon?

Probably not, industry observers said. With half of corporate desktops still running Windows 3.x and 16-bit applications, the horsepower just isn't there for

"My guess is when [large corporations] have the hardware to do Windows 98 or NT, that they will then be in a position to use voice if they want to," said Amy Wohl, editor of the computer industry newsletter "TrendsLetter" in Narberth, Pa. Wohl is preparing to release a white paper on speech recognition systems.

Minimum requirement of most continuous speech products: A 166-MHz Pentium with 32M bytes of RAM. Analysts believe 50% of corporate desktops still have only enough power to run Microsoft Windows 3.1.

Corporations already are adding the infrastructure. International Data Corp. in Framingham, Mass., said the average machine being purchased by companies now has a 200-MHz Intel Corp. Pentium MMX with 32M bytes of RAM.

"I wouldn't be surprised in two years if we don't use it to supplement things in transcriptions," said Arich Hennemen, manager of computer services at Valley Care Health Systems in Livermore, Calif. Hennemen said the company considers voice recognition systems almost every year. The technology itself has matured much in five years. "We haven't bitten yet, but we're keeping an eye out," he said.

Betting on voice, Lotus Development Corp. in Cambridge, Mass., recently bundled parent company IBM's ViaVoice with Lotus SmartSuite 97 and integrated it with the suite's word processor, Word-Pro 97.

Lotus is considering extending the voice capabilities to other areas, including letting users control the computer by voice, not just dictate into the word processor, said Penny Scharfman, a Lotus senior marketing manager. Continuous speech recognition has sparked interest in the suite, she said.

Microsoft Corp. also isn't taking voice lightly. In September, Microsoft CEO Bill Gates announced the company had invested \$45 million to buy an 18% stake

in Lernhout & Hauspie Speech Products. Microsoft is hard at work on natural language processing, an important component of voice recognition.

And a spokeswoman at Corel Corp. said the Ottawa company is looking at ways to embed speech technology in its WordPerfect Office suite. □



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Database makers slow to move objects

By Craig Stedman

MAJOR DATABASE vendors aren't exactly putting the pedal to the metal to deliver promised object technology.

Nearly five months after shipping its Oracle8 database, Oracle Corp. is just starting to beta-test development tools that are supposed to make it less painful for users to take advantage of the software's built-in object capabilities.

Meanwhile, Computer Associates International, Inc. delayed shipments of its new Jasmine object database for a third

time after the product flunked quality tests last month, officials confirmed.

And Informix Software, Inc. is still fine-tuning a Windows NT version of its object-enabled Universal Server database that was originally due out in June (see box).

The slow progress doesn't appear to be causing widespread headaches, because most mainstream applications still are centered on relational databases.

But some database users want to start getting their feet wet with objects.

For example, Jim Scott, financial applications manager at Comcast Cable Communications, Inc. in Philadelphia, said he is trying to get a test copy of Oracle's Object Database Designer tool for Oracle8 so he can begin experimenting with the technology.

OBJECT SHOWDOWN Vendor Product Oracle Oracle8 object modeling tool due in Q1 1998 CA Jasmine object database delayed until December Informix Universal Server database for Windows NT to ship by year's end

The ability to turn business processes into reusable software objects could make application development much faster, especially as Comcast converts client/server systems to the World Wide Web, Scott said.

But "cranking out a bunch of SQL code" to create database objects isn't very appealing, he added.

For now, users who want to build Oracle8 objects have to do hard labor to manually write SQL and C++ code, conceded officials at Oracle in Redwood Shores, Calif.

Object Database Designer, which is due early next year, will change that by providing a visual modeling tool with a built-in C++ generator, an object repository and support for converting relational data designs to object form.

BABY STEPS

But Oracle is still just "taking some baby steps" toward full object support, said Anthony Bradley, an analyst at Meta Group, Inc. in Stamford, Conn. Object Database Designer doesn't link up with business process modelers and application tools, and even Oracle8 itself has limited object capabilities, he said.

CA, in Islandia, N.Y., is now targeting December for the release of Jasmine.

The software, a pure object database aimed at multimedia and World Wide Web applications, has slipped a full year behind CA's original shipment date of late 1006

"If it got delayed too much longer, that could set back some implementation schedules for us," said Dave Nahmias, manager of product marketing at Template Software, Inc., a Dulles, Va., vendor that plans to use Jasmine in object applications it designs for customers.

But Jasmine's programming environment is solid, which lets application development proceed, Nahmias said.

Jasmine should speed up development and application performance compared with mapping objects into relational databases, he said. □

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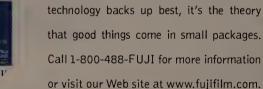
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CA and Tivoli: Same goal, different approaches

By Patrick Dryden

BY DIFFERENT PATHS, rivals Computer Associates International, Inc. and Tivoli Systems, Inc. are taking their enterprise management tool kits where their users want to go.

CA recently launched a focused development partnership that demonstrates how its control over the Unicenter TNG software soon will add specific new capabilities to the suite.

Tivoli last week hosted another conference for hundreds of developers and inte-

grators and demonstrated how its open standards approach is slowly building an industry for tools and support around its TME 10 framework

Either way, the long-term goal is efficient maintenance of complex information systems through the integration of network, systems and application management tasks.

IS managers seek central control, automation and a business-eye view of farflung components. But some managers want one vendor to handle all development, support and integration; others want to pick the best tool for each job, yet get them all to work together.

"We prefer to see new support show up within Unicenter TNG so we don't have to evaluate and integrate point tools and train our staff on each one," said Roger Einbecker, assistant vice president of technical shared services at Allstate Insurance Co. in Northbrook, Ill. Allstate plans to help test agent software and performance monitors it expects to need someday for massively parallel systems, clustered servers and Asynchronous Transfer Mode (ATM) backbones.

CA is developing those enhancements with one of the few users that requires such support right now — the National Center for Supercomputing Applications (NCSA) at the University of Illinois at Urbana-Champaign.

Some managers want one vendor to handle all development, support and integration. Others want to pick the best tool for each job, yet get them all to work together.

Corporations won't need to monitor such powerful systems and high-speed networks for years, said Larry Smarr, NCSA director.

Even so, within six months the basic Unicenter TNG suite should be able to support new interfaces, network architectures such as ATM and enhanced performance trending, said Marc Sokol, senior vice president of advanced technology at CA in Islandia, N.Y.

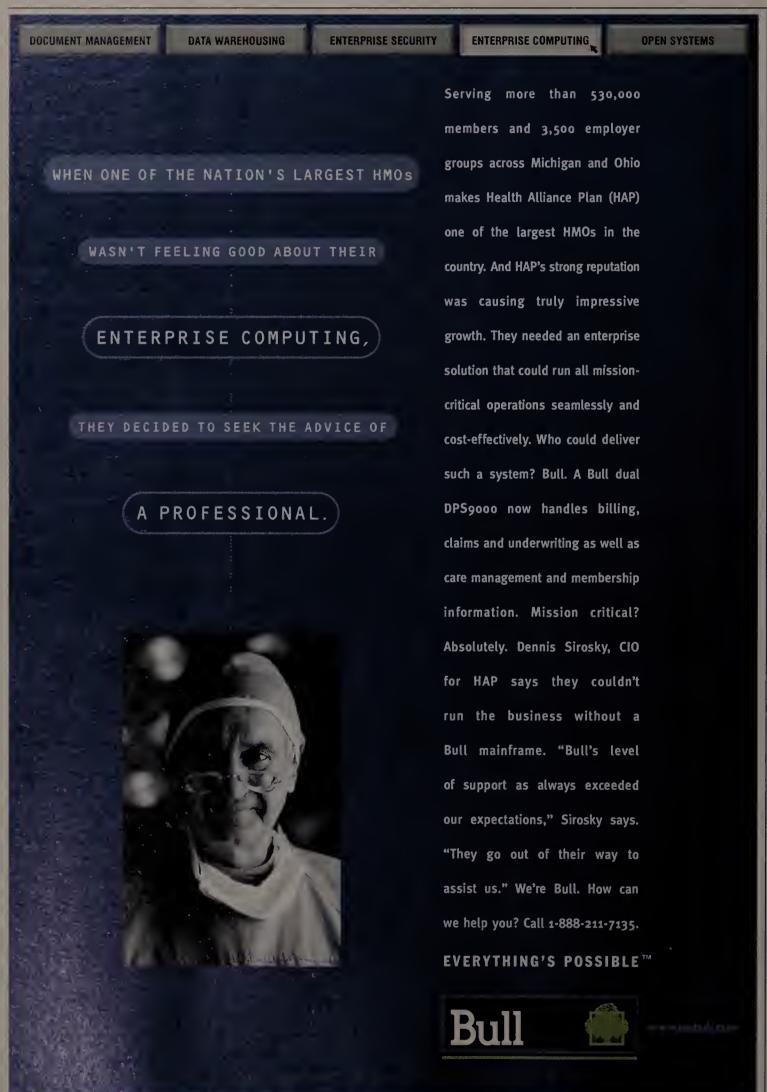
While a tightly integrated suite supplied and supported by a single vendor attracts some IS managers, others demand the flexibility to choose their tools.

"TME 10 doesn't lock us in to anything," said Don Whitfield, an IS vice president at NationsBank Corp. in Charlotte, N.C. No vendor can intimately understand every kind of hardware, operating system and application throughout the banking chain, he said. And support groups that are used to certain tools couldn't change overnight, he said.

Those users prefer Tivoli's approach. Tivoli invests 15% of expenses to help nurture, certify and promote tools and services from partners.

Management working groups gather competing vendors to define standard interfaces for the TME 10 environment so any vendor's tool can work with others in the open framework. The latest, a scheduling interface, should boost interoperability between workload management and systems management applications.

The number of tools that can plug in to TME 10 hasn't increased much in the past year, but the quality of integration has.





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Adminstrators hold the key

▶ Users find NT security to be strong, but implementation can be tricky

By Laura Di Dio

THOUGH Microsoft Corp.'s baseline security architecture in Windows NT is considered to be inherently strong, it is only as good as the administrators who secure a network.

Implementation can be a challenge for inexperienced administrators, but poor planning and user errors still account for many network security breaches, said users and security specialists.

"I love the security in Windows NT. But it's like electricity: The power is there, but it's useless if you don't turn on the light switch," said Dean Johnson, senior technical specialist at Freudenberg-NOK General Partnership in Bristol, N.H. "You have to know what you're doing. Windows NT has a lot of depth, and we don't know enough yet about all of its internal quirks to make it bulletproof, so we brought in outside consultants to help out."

Sentiments such as that are good news for Microsoft, which increasingly seeks to move users off 16-bit platforms to the 32-bit NT, while also wooing en-



terprise users. For example, Microsoft CEO Bill Gates will team up with Digital Equipment Corp.'s Robert Palmer at a Dec. 2 press conference on NT and the enterprise.

GOOD REVIEWS

Overall, one dozen Fortune 1,000 businesses and three security analysts said NT security compares favorably with competing operating systems such as Unix, Novell, Inc.'s IntranetWare and IBM's OS/2 Warp Server. But no operating system offers the near-impregnable level of security of mainframe operating systems such as IBM's MVS, they said.

Despite potential potholes, there isn't a smoking gun that will singularly take down a Windows NT network, the users said. Internet Security Systems, Inc.'s (ISS) Net/Xforce in Atlanta - which ferrets out and publicizes security holes and fixes for a variety of operating systems — so far this year has uncovered 17 Windows NT security issues that it rated as highly

"That's pretty low," said David LeBlanc, ISS's senior Windows NT security engineer. "We get a daily flood of Unix holes."

In fact, said Jerold Shulman, president of JSI, Inc. in Alpharetta, Ga., "with the proper policies, you can lock down Windows NT tight as a drum." JSI is a reseller that also has a World Wide Web page devoted to the latest Windows NT hacks and solutions: www.jsiinc.com.

Still, users said they must constantly dodge potential lethal bullets that are being fired by a more active Windows NT hacker community that wants to invade their networks via a variety of known and as-yet-unknown security holes.

The biggest downside to NT

security, users said, is its vulnerability across a wide-area network. "So far, we've managed to avoid taking a major, direct security hit. But we don't use Windows NT Internet Information Server (IIS), which is a big entry point for hackers," said Kurt Guerrero, a senior LAN architect at Northern Trust Co. in Chicago.

But at some shops, the potential for remote access hacker invasions is a constant threat.

Jeff Dazell, LAN network services administrator at Dana Corp. in Toledo, Ohio, which has 45,000 Windows NT users, said he is concerned that a remote user will inadvertently wreak havoc on his NT networks because of the wellpublicized gaps in Microsoft's Internet Explorer 4.0 and IIS.

"My worst nightmare is that a user will install an unauthorized modem on his desktop or home PC and configure it for remote access. That opens a back door in Windows NT and lets hackers circumvent my proxy server and firewall security as effectively as the Germans sidestepped France's supposedly impenetrable Maginot Line in World War II," Dazell said.

TOO EASY

Paradoxically, one of Windows NT's greatest strengths — its ease of use and installation — is also one of its greatest security drawbacks.

"Windows NT comes out of the box in a completely trusting and open manner. The onus is on the network administrator to enable the security mechanisms," said John Pescatore, a principal at Trusted Information Systems, Inc. in Rockville, Md.

Batten the hatches

Companies often "victimize themselves" by failing to close the most obvious openings in Windows NT, said Jim Marshall, an information delivery security consultant at The Dow Chemical Co. in Midland, Mich. He advised his fellow users to do the following:

- Disable the Guest account immediately.
- Rename the Administrator account.
- Allow administrative access by local log-on only.
- ■Remove the "Everyone" group from directories.
- Teach users what makes a good password.
- Store files in a secure directory, not on publicly shared areas such as public directo-

- Laura DiDio

On the plus side, the Access Control Lists in Windows NT are "very good and the fundamental security structure is very strong and flexible," LeBlanc said.

Shulman actively checks and tests each confirmed security bug as it is discovered by legitimate organizations. Once these companies notify Microsoft, the Redmond, Wash., company usually posts a hot fix on its Web site within 24 to 72 hours, said Karan Khanna, a Microsoft security product manager.

LeBlanc said there are no silver bullets that provide 100% security on Windows NT or any network operating system. "Windows NT security is only as good as the person administering it. My best advice is get educated and stay informed," he said.□

RELATEDLINKS

There's a wealth of information

on baseline Windows NT

security, issues and fixes

available on the Web. Among

the most frequently

accessed sites:

www.microsoft.com/

security/

www.iss.net/vd/sitesn.html

www.ntsecurity.net

Product manager says best defense is common sense

By Laura Di Dio

THERE IS NO such thing as a 100% secure operating system environment -- but you can come close.

Common sense is one of the best weapons in the security war, said Karan Khanna, a Microsoft Corp. security product manager who offered the following tips for NT users:

- ■Install the latest service packs and hot fixes on sensitive machines (domain controllers).
- Review and follow the recommendations in "Guidelines for Securing Windows NT" (www.microsoft.com/security/).
- Enforce a strong password policv in your domain using the passfilt.dll dynamic link library.
- Ensure that you have an appropriate level of physical security. For example, restrict the boot process by disabling a

floppy disk boot or by using a power-on password.

- Periodically do "outside-in" network penetration testing. Keep an eye out for open ports, unneeded processes and default account/passwords.
- ■Turn on auditing for sensitive resources and files, and review audit logs regularly to identify and flag abnormal patterns.
- ■Businesses with very high security needs should consider using add-on hardware devices such as Security Dynamics, Inc.'s SecureID cards or Sony Corp.'s FIU FIS-002 secure logon for NT, which authenticates fingerprints.
- Put restrictive access control on sensitive resources — for example, registry keys.
- ■Use a Windows NT System Startup Key to strongly encrypt on-disk and backup copies of passwords.□

A recent survey shows that nearly 50% of businesses experienced attacks on their networks within the past year. The survey also shows the following:

41% had losses of more than \$500,000 for each intrusion had losses that cost more than \$1 million per security attack said their networks were hacked by outsiders 58% 61% said their networks were hacked by company insiders

27% doubted their organizations had the ability to detect illicit hacks

Base: 210 Fortune 1,000 businesses

Source: WarRoom Research LLC, Baltimore

For these and other related links, point your browser at: www.computerworld.com/ links/ntsecuritylinks.html

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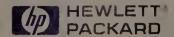
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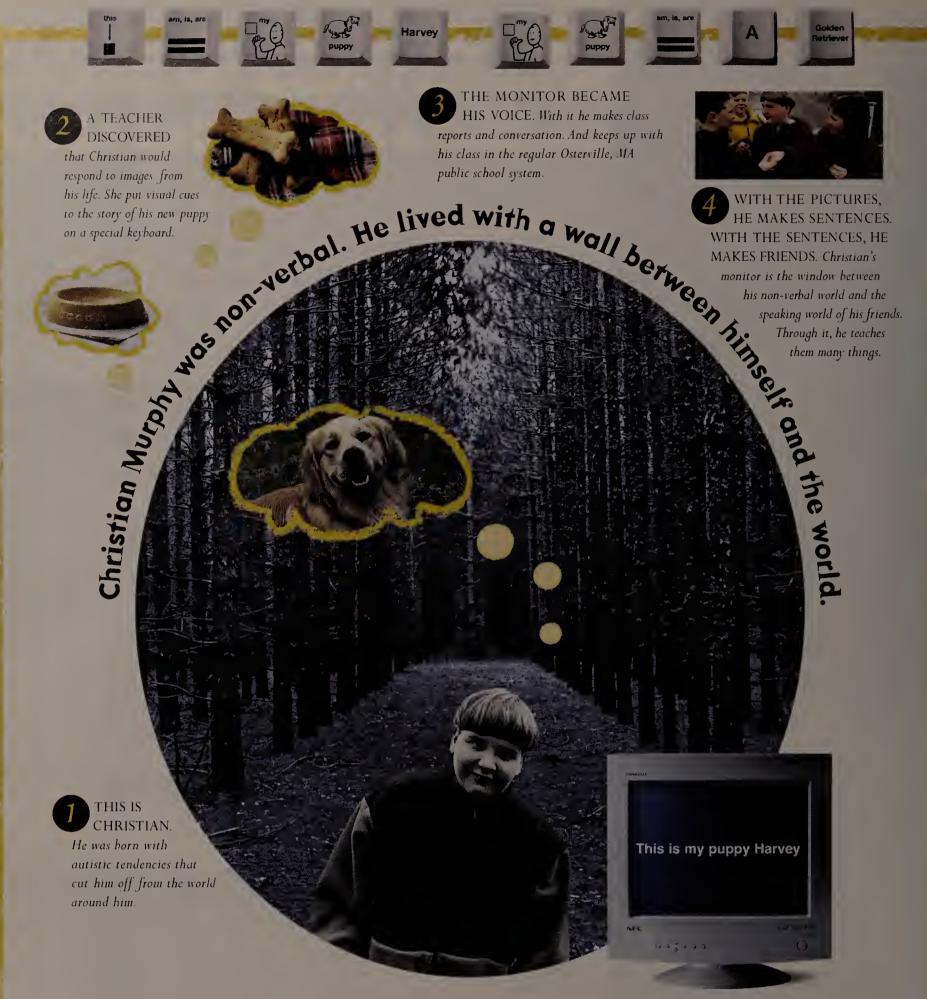
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Computer Industry

MCI/WorldCom megamerger poses challenge to AT&T

► Lower costs, more bandwidth key to users

By Matt Hamblen

USERS EXPECT last week's \$37 billion merger agreement between MCI Communications Corp. and WorldCom, Inc. to result in a strong competitor to AT&T Corp. for voice and data services.

"It's great for a new dog to

stand up on his hind legs and spit in the eye of the giant," said Jack Reed, a systems engineer at Grumman Systems Support Corp. in Longmont, Colo.

Reed said he uses Sprint Corp. in Kansas City, Mo., and AT&T in Basking Ridge, N.J. for services. And although he has no major complaints, he said he was glad to hear that another powerful player could be bidding for his business.

"I'm in favor of competition,



WorldCom's Bernard Ebbers (left) becomes CEO of the new company, and MCI's Bert Roberts becomes chairman

and the merger mania should increase that," Reed said. "You can get too much market power just like IBM once did or now

Other users said they want increased bandwidth from carriers at the same — or even lower — costs, and they believe the megamerger could help them.

Also key is one-stop shopping. Users said they want one carrier to provide all services for them.

and I look for a great price," said Christine Sostack, telecommunications manager at Com-

FAQS: It's WorldCom after all

Q: What are the key terms of the MCI/WorldCom merger?

A: WorldCom will give MCI stockholders \$51 of WorldCom stock for each MCI share, up from \$41.50 announced in October. World-Com CEO Bernard Ebbers will become CEO of the new company, and MCI Chairman Bert Roberts will become chairman.

Q: What about bidders GTE Corp. and British Telecommunications

A: GTE wasn't ready to up its \$40-per-share cash offer. BT will be given \$7.4 billion to dissolve its 20% stake in MCI.

Q: Will the deal get approved?

A: Both companies are confident they will win regulatory and shareholder approval in six to nine months, although legal analysts are more skeptical.

Apple to sell direct with online store; users wary

By Kim Girard and Wylie Wong

APPLE COMPUTER, INC. tried to boost its business last week by opening an online store and offering users build-to-order computers, but analysts said it may be too late to turn the struggling computer maker around.

"Bottom line: This doesn't save Apple," said Eric Lewis, an analyst at International Data Corp. in Framingham, Mass. "They're doing a lot of the right things, but they're not doing enough yet."

Amid much fanfare, Apple interim CEO Steve Jobs last Monday announced the Apple Store, a strategy to boost Apple sales by selling direct to customers. Apple could use the boost; it now holds about 3.3% of the U.S. PC market, a share that has dramatically slipped from 7.9% in 1995 and 5.2% in 1996, according to International Data Corp. in Framingham, Mass.

But Jobs offered no update on the search for a new Apple CEO. Nor did he discuss the Cupertino, Calif., company's plan to build network computers. Zeroing in on the Internet commerce venture, Jobs took a shot at Dell Computer Corp. CEO Michael Dell, who recently suggested Apple shut down and return money to its shareholders.

"With our new products and new store and our new build-toorder manufacturing, we're coming after you, buddy," Jobs

Analysts called Jobs' reaction showmanship and noted that Dell, which sells Windows machines and competes in a completely different market, already makes 15% of its sales online.

PROFIT PERCENTAGE

As of last Tuesday, Apple claimed that there had been 4.4 million hits on its new World Wide Web site (www.store.apple. com) after its first day and \$500,000 in orders after just 12 hours of operation.

"One way this helps is [Apple] is able to keep a larger percent of the profit" by eliminating the middleman, said Lisa Yee, a systems manager at San Franciscobased law firm Jones Hall, Hill & White. But Lee said it is unlikely she will buy Apple computers online. She said she buys some software on the Web but buys hardware from a retailer because it is less expensive.

But some users will prefer buying directly from Apple for the comfort factor, despite the fact that resellers can still cut the price of an Apple computer sold online by as much as \$500, analysts said.□

like Microsoft."

"I look for a reliable network,

stock, Inc. in New York. "If they can't compete on everything, I'll go elsewhere."

CATCHING AT&T

Analyst Dan Taylor at Aberdeen Group, Inc. in Boston said the combined entity — to be called MCI WorldCom — should have \$30 billion in revenue next year. "That would make them really the closest entity we have known to be able to touch AT&T," which has annual revenue of more than \$50 billion, he

"AT&T has really been the

only company that could do everything for you," Taylor said, with a wide range of enterprise applications for local and longdistance connections and network services such as frame relay and Asynchronous Transfer

Analyst Tom Nolle, president of CIMI Corp. in Voorhees, N.J., predicted that the combined infrastructures could make MCI WorldCom an "Internet power-

WorldCom is based in Jackson, Miss., and MCI is based in Washington.□

Microsoft strikes back at legal attackers

By Carol Sliwa

MICROSOFT CORP. may prefer to see the spotlight fall on its products, but these days the beam has been shining on its legal woes at the state and federal levels.

On the federal side, the U.S. Department of Justice remains hot on Microsoft's trail. The company last week filed a 48page formal response to the Justice Department's complaint, which charges Microsoft with violating a 1995 court order that bars the software maker from imposing anticompetitive licensing terms on PC makers.

Calling the Justice Department's claims "baseless" and its reading of the consent decree "implausible," Microsoft said the complaint is "aimed squarely" at preventing the company from including improved features and functionality in upgraded versions of Windows 95.

Microsoft's response emphasized not only that the government knew of its plans to integrate Internet technologies with its Windows 95 operating system, but also that the consent decree permits those types of "integrated products."

"The very language that says we're allowed to integrate things in Windows 95 was designed exactly for this type of situation," asserted Microsoft vice president Brad Chase.

TRULY INTEGRATED?

He claimed that the mere shipment of the Internet Explorer browser with Windows 95 is sufficient to meet the "integration" threshold. The Justice Department, on the other hand, contends that Explorer isn't truly integrated with Windows 95. It claims that Microsoft separately markets, licenses and dis-

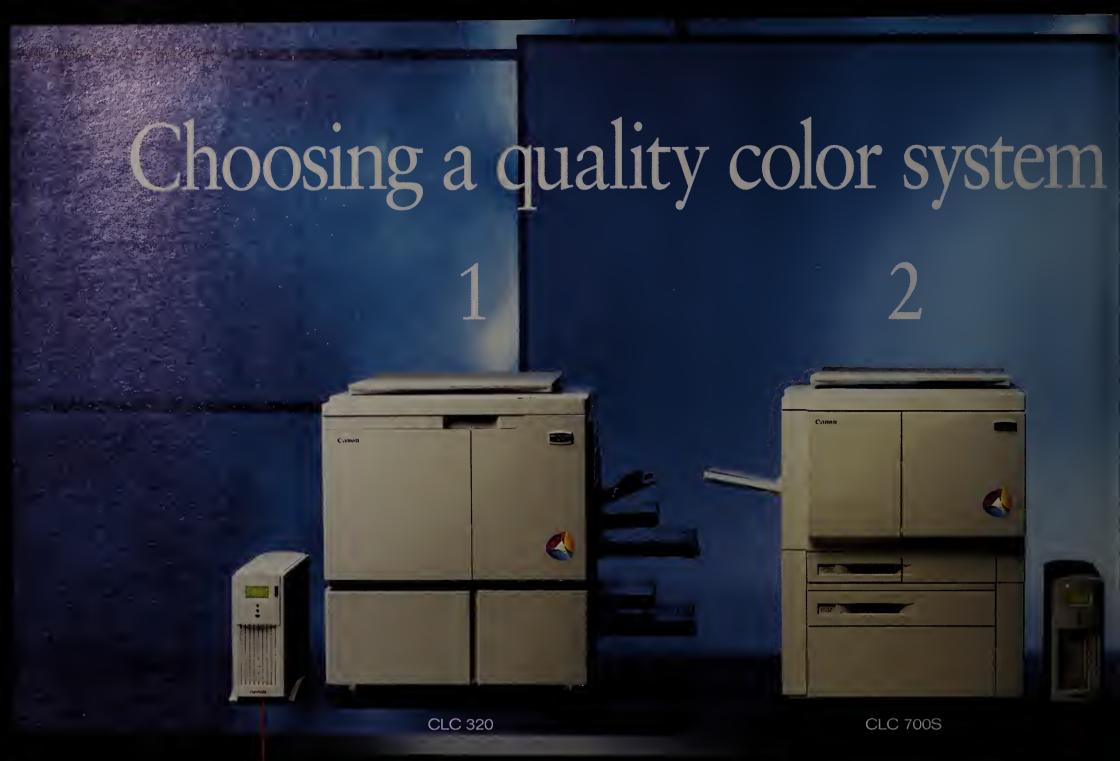
tributes each version of the browser in ways different from any integrated features of its operating system products.

On the state level, at least seven attorneys general - in California, Connecticut, Massachusetts, Minnesota, New York, Oregon and Texas - are investigating Microsoft's business practices.

Texas took an extra step a little over a week ago, filing a lawsuit that charges Microsoft with hindering its antitrust investigation by "improperly" forcing customers and licensees to inform Microsoft before they supply information to state and federal antitrust investigators.

Microsoft claims that other companies employ similar nondisclosure agreements.□

Microsoft goes to Capitol Hill to try to win some friends. In Depth, page 109





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OPINION

Lessons learned "Change is good. You go first," is one of my favorite pieces of Dilbert ad-

vice. It also sums up

Computerworld's cautious approach to redesigning our Web site, www.computerworld.com.

Like so many of the companies we cover in their own quest for the ideal Web site, we've watched online trends avidly while debating what our 2-year-old site should become when it grew up. We tinkered with the design and the color schemes. We swapped search en-



gines. We tossed editorial content onto our home page like designer luggage into a cargo hold. Ultimately, we realized that although there was great stuff in there, it was getting too crowded to find it easily.

All that changes today

with the launch of our reorganized and reader-friendly site. We tore it down and rebuilt it to suit readers who click in looking not only for the latest technology news but also for job resources, services and management information tools.

Oddly enough, we learned our best lessons from some highly successful consumer sites rather than from other tech publications with the all-too-familiar editorial kitchen-sink syndrome.

We've streamlined @Computerworld into four easily navigated categories: News & Features, IT Careers, Resource Center and Computerworld, Inc. The News & Features area provides an easier, more organized way to check up on everything from the latest news to audio interviews to thought-provoking opinions from our columnists. The IT Careers section contains all sorts of job-related information, stories and services. The Resource Center includes an archive of skills- and product-related data and research. And the Computerworld, Inc. spot displays our own company data such as subscription information and advertising rates.

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Maryfran Johnson, Executive editor Internet: maryfran_johnson@cw.com



IRS abuses guidelines on independent consultants

Section 1706

capriciously

11 years.

has been used

by the IRS for

▶omputerworld's story about the IT labor emergency, though informative, omitted what is probably the single biggest reason for the situation: Section 1706 of the Internal Revenue Code.

For 11 years now, 1706 has been used capriciously by the IRS to

stifle independent technology consultants and smaller consulting firms by singling out an entire class of workers for nothing short of harassment and intimidation. The IRS

and more than a few unscrupulous brokers/agents have spread disinformation about the use of independent consultants or small consulting firms, falsely claiming that it is illegal, in some cases, to use them.

The IRS has repeatedly misused and inconsistently applied its "20 questions," which supposedly are used to determine whether a practitioner is indeed an independent consultant or an employee. These tactics have not helped to improve either the number of fully qualified, experienced practitioners nor stimulated business use of the smaller firms that could easily satisfy their development requirements.

In the 16 years my firm has been around, we have managed to stay in there and fight the trend to become a successful consulting

and development firm. However, more than a few of my peers have fallen by the wayside, unable to survive 1706 issues and challenges. If we want a solution to the shortage, then both the client businesses and the practitioners need to lean heavily on Congress

and get 1706 repealed.

Perhaps the horrible reality that many companies, both large and small, are confronted with significant disruptions and losses from year 2000 and other infrastructure issues will shock them into action.

J. Alan Rueckgauer President and CEO Rueckgauer Systems Associates, Inc. Washington

Ceferino Lamb ceferino@businessobjects.com

as I used to have in California.

Nerds grew into suits

RANK HAYES' column ["Suit or ■ nerd?" CW, Oct. 20] continues to illustrate his complete lack of knowledge of the industry.

Before the introduction of the home-toy PC to the office, with its brigade of self-proclaimed experts, IS was very successfully managed by nerds who grew into suits. They brought with them an indepth understanding of the techie side and hard-earned stripes in business management. Professionals (in the past) did not turn out bug-ridden software or incomprehensible systems based on the latest fad.

> Paul D. Lane Rockville, Md. pdlane@acm.org

More letters, page 41

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

European telecom envy

LIKED THE Computerworld article on WorldCom and MCI ["World-Com bid surprises MCI," CW, Oct. 6], though it would have been neat if the one-year outlook chart had included international telecommunications providers, too.

Many of the U.S. companies listed in the chart don't serve Europe (yet), so our choices are much more limited. Although some of our telecom companies are huge, too, the market is overregulated and noncompetitive. I'm looking forward to the day when I have as many telecom and Internet service provider choices here

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- Wholesale/Retail/Trade
- S0. Business Service (except DP)
 60. Government State/Federal/Local
- Communications Systems/Public
- Utilities/Transportation Mining/Construction/Petroleum/
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 80. Manufacturer of Computers,
 Computer-Related Systems or
- 85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
- 90. Computer/Peripheral Dealer/Dist./
- 9S. Other_
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 President/Asst.VP IS/MIS/DP
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 21. Dir/Mgr. MIS Services, Information
- 22. Dir/Mgr. Network Sys., Data/Tele. Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services
 23. Dir./Mgr. Sys. Development, System
- Architecture Programming Management, Software
- 41. Engineering, Scientific, R&D, Tech.
- 60. Sys. Integrators/VARs/Consulting Management
- **CORPORATE MANAGEMENT**
- 11. President, Owner/Partner, General Mgr.
- 12. Vice President Asst Vice President 13. Treasurer, Controller, Financial Officer
- **DEPARTMENTAL MANAGEMENT**
- S1. Sales & Mktg. Management 70. Medical, Legal, Accounting Mgt.
- OTHER PROFESSIONAL MANAGEMENT
- 80. Information Centers/Libraries, Educators, Journalists, Students 90. Other Titled Personnel
- (a) Solaris (e) Mac OS (b) NetWare (f) Windows NT (c) OS/2 (g) Windows (h) NeXTStep (d) Unix

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)

- Networking Products ☐ Yes ☐ No Intranet Products ☐ Yes ☐ No

Year 2000 glitches may be everywhere

- 4. Do you use, specify, evaluate, recommend, or approve the purchase of Internet products and/or services?
- □ No ☐ Yes

Operating Systems

Staffing woes deepen

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- 22. Dir/Mgr. Network Sys., Data/Tele. Comm., LAN Mgr/PC Mgr., Tech. Planning, Administrative Services
- 23. Dir/Mgr. Sys. Development, System 31. Programming Management, Software Developers
- 41. Engineering, Scientific, R&D, Tech.
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- S1. Sales & Mktg. Management70. Medical, Legal, Accounting Mgt. OTHER PROFESSIONAL MANAGEMENT
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- Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)

Operating Systems

- (a) Solaris (e) Mac OS (b) NetWare (f) Windows NT
- (c) OS/2 (g) Windows
- (d) Unix (h) NeXTStep

- Networking Products ☐ Yes ☐ No
- ☐ Yes ☐ No Intranet Products
- 4. Do you use, specify, evaluate, recommend, or approve the purchase of Internet products and/or services?
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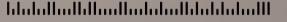
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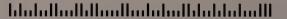
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Double-check your bridge to the year 2000 Gary H. Anthes

hen I set out recently to write a story suggesting that the year 2000 problem might not be so terrible after all, a colleague expressed grave doubts.

To him, the problem was so patently horrendous and complex that it would be irresponsible to suggest otherwise, no matter what Pollyannas I might find.

After some research — and I did find some Pollyannas — I had to conclude he was right. The year 2000 problem is re-

ally ugly. But I salvaged the story by adopting a slightly different premise: There are real alligators in the year 2000 swamp, but some organizations, such as the Social Security Adminis-

tration (SSA), had found ways to bridge the swamp and could now sleep nights.

It wasn't until after the story was printed that I found that bridge had holes.

But my embarrassment pales next to what the SSA must be feeling.

The agency recently discovered 33 million lines of legacy code that had been overlooked in its highly touted year

The SSA discovered 33 million lines of code that had been overlooked in its highly touted year 2000 program.

2000 program. Congressional auditors now say there is substantial risk that some of its mission-critical systems — those that pay out \$386 billion in annual benefits — may not be fixed in time.

What's ironic about this — and so scary about the year 2000 problem — is that the agency for years has been an

icon of year 2000 preparedness. It began work on the problem in 1989 when a program choked on a 21st century date.

While other agencies either wrung their hands or just sat on them, the SSA fixed millions of lines of code.

The SSA held year 2000 seminars for other federal agencies, and its IS managers gave speeches on how to survive in a post-1999 world. Whenever the year 2000 came up in public forums, such as

congressional hearings, invariably someone would say of the Defense Department or the IRS, "Why can't they be more like Social Security?"

But now the General Accounting Office (GAO) reports that 54 state disability systems were excluded from the SSA's year 2000 work.

The SSA had limited its work to its central systems, which include 24,000 soft-

ware "modules" and 34 million lines of code. The state systems are vital for determining eligibility for federal disability payments, but the SSA began examining them only 11 months ago.

The GAO also revealed that the SSA has no contingency plans in case its systems aren't fixed on time. The SSA said

it hadn't developed them because it felt its early start on the year 2000 problem would make those plans unnecessary. Who needs contingency plans if you're planning on having no contingencies?

And in another Alice-in-Wonderland explanation, it also said it hadn't developed backup plans because it simply had to meet the deadline. In other words, if you aren't allowed to fail, you won't fail.

But probably nothing highlights the need for backup plans more than the revelation by the GAO that the SSA exchanges some 6,700 data files with other organizations. Not all of them began year 2000 work in 1989, one suspects.

There are several lessons here. First, starting early and working hard on the year 2000 problem doesn't ensure success. Second, if you have no year 2000 contingency plans, you aren't ready for Jan. 1, 2000.

Third, the devil is in the interfaces. Technically, the overlooked systems are state, not federal systems, but they're vital to the processing of federal payments. If a year 2000 problem hurts your customers, it is your problem.□

Anthes is Computerworld's senior editor, special reports. His Internet address is gary_anthes@cw.com.

Honesty, not IS, failed at HMO Michael Schrage

o doubt you've read about the disaster Oxford Health Plans ran into phasing in a new billing system.

The system, launched more than a year ago, royally screwed up whom got billed and when. The health maintenance organization was forced to advance hospitals payments against their unprocessed invoices. Huge reserves were set aside. Cash flow congealed. The stock cratered. The chief financial officer resigned. The outlook of this high-flying entrepreneurial HMO — which was heralded as a model for the industry — is spattered with doubt.

We can treat this as a cautionary tale of MISmanagement. We can breathe a sigh of relief and mutter, "There but for the grace of God go I."

We can even smirk arrogantly in the belief that a disaster of that magnitude could never happen to us.

Each of those responses qualifies as rational. But my reaction to this debacle is emphatically not rational.

Each story I read left me furious and incredulous. Mind you, I haven't a penny invested in Oxford, and I haven't called

up my friends who work with HMOs.

The intensity of my feelings reflects my most deeply held passion about the real sickness that plagues enterprise management — its fear of responsibility. I don't doubt for a moment that Oxford's switch-over to this new system was hideously mismanaged.

Maybe Oxford's was the worst IS team since Grace Hopper coined the word "bug"

But, please! Just where the heck was top management during that year of living dangerously? Just how deaf, dumb and blind were the people running this company?

When did Oxford's board of directors, which is legally responsible to exercise

fiduciary oversight, first know that the company's new billing system was creating more problems than it was solving?

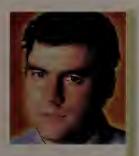
No doubt, we're going to find out the explicit answers to these questions — not a few delivered under oath. Let me tell you what those answers will have in common: dishonesty.

No, the answers themselves won't necessarily be dishonest — although I wouldn't bet against that, either.

But dishonesty is the disease that made this HMO sick unto near-death. Dishonesty and being dishonest about that dishonesty is the common denominator of these kinds of dysfunctional disasters.

You tell me: Is it unreasonable to expect that an organization phasing in a new billing system — the mission-

critical component that assures accounts receivable, accounts payable and cash flow — would at least audit the effectiveness of its software in its earliest months? Particu-



Oxford was the victim of a monstrous deception - or self-deception.

larly if it was preaching to Wall Street about how fast it expected to grow and how important financial controls are to its business?

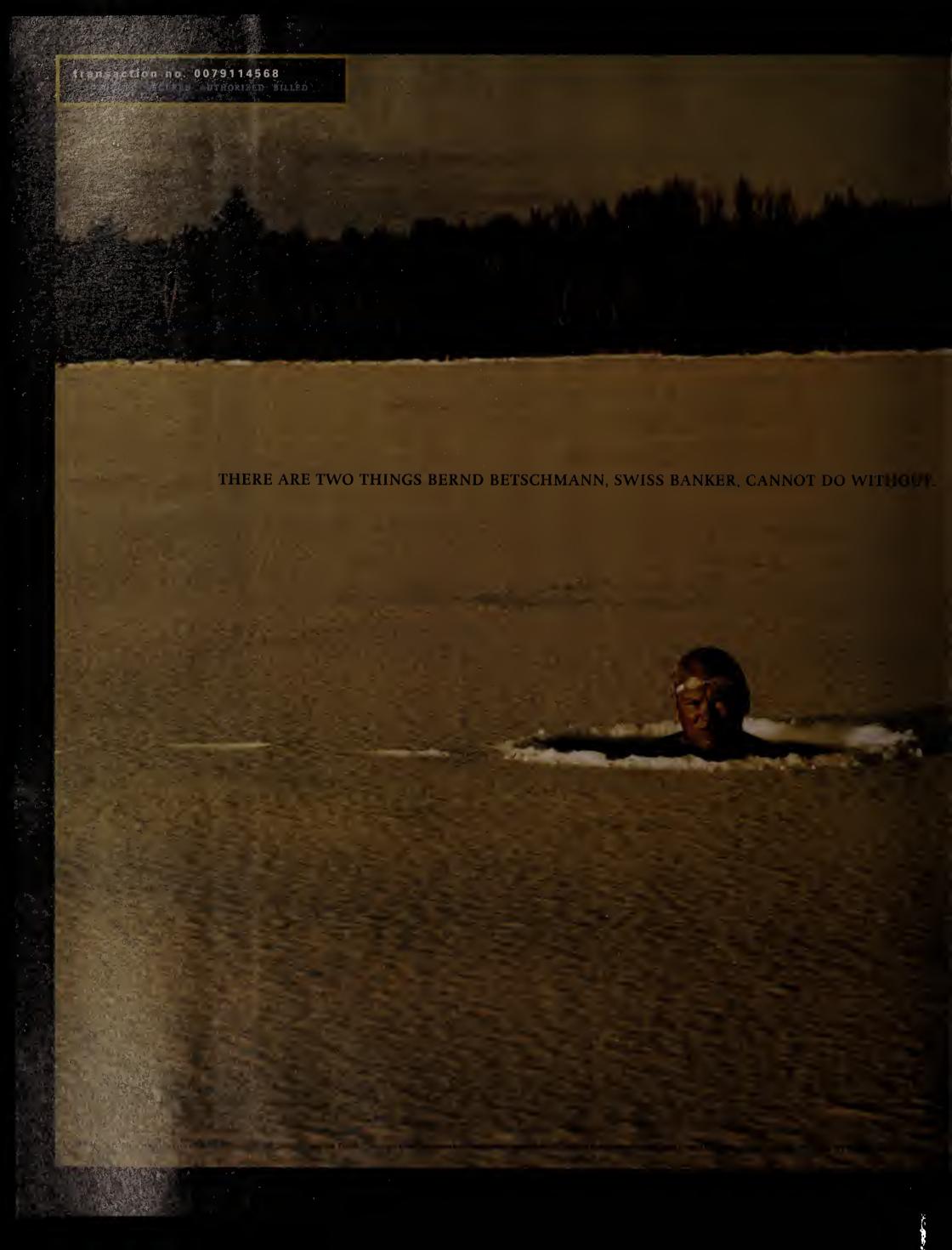
The answers are self-evident. The reason Oxford was "surprised" more than a year later is that it was the victim of either a monstrous deception or an even more grotesque self-deception. Not trying to know is as dishonest as ignoring what you do know.

Based on my personal experiences, most IS people do a lousy job of covering up what a miserable job their systems are doing. Indeed, "the suits" are

usually ragging the geeks about what incompetents they are. It is incredible that the business side of the house could be so ignorant of the billing problems that the new system was creating.

The Oxford lesson isn't that mismanagement of mission-critical IS can clip the wings of a high-flyer; it's that honesty is ultimately cheaper than dishonesty.

Schrage is a research associate at the MIT Media Lab and author of No More Teams! His Internet address a schrage@media.mit.edu.





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EXECUTIVE

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Solutions Profile: Distributed Profile: Computing

During the recent 1997 Executive Technology Summit, held at The Pointe Hilton Resort at Squaw Peak in Phoenix, Arizona, CIO's and other senior level IT leaders from around the globe met and discussed three emerging technologies with some of today's brightest minds. The three technologies portrayed included Distributed Computing; Data Mining and Data Warehousing; and Doing Business with Internet Technologies.

Now in its fourth year, these IT leaders met with peers and industry experts to examine case studies and engage in open and honest dialogue. Within the Solution Lab portion of the program, ETS sponsor Computer Associates and its customer, Shared Medical Systems (SMS), discussed its integration of Unicenter® TNG^{TM} .

Challenge

Shared Medical Systems Corporation (SMS) is the worldwide leader in providing health information solutions for the health industry. The company, based in Malvern, Pennsylvania, provides a full range of information systems and services to over 2,700 customers in 20 countries. Over 1,000 of those customers, with over 185,000 attached devices, utilize SMS for remote computing services built on IBM mainframe technology platforms running out of SMS' Information Services Center in Malvern. SMS needed to select enterprise management tools to provide their growing number of distributed computing systems customers with remote computing and remote server management deployment options.



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- CA's willingness to work closely with SMS to jointly develop SMS' remote server management services using Unicenter TNG.

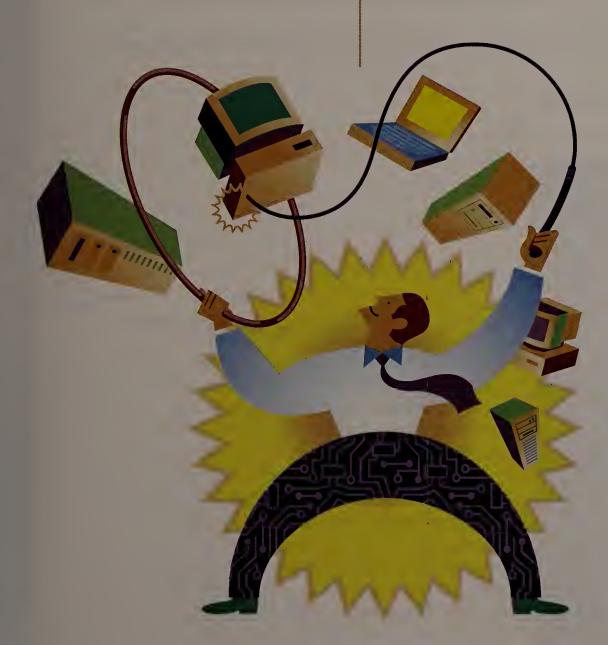
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Getting Control of TCO





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November 17, 1997

COMPUTERWORLD

From Intel and Hewlett-Packard to Nike and Pennzoil, industry leaders are taking steps to control their computing environments and reduce TCO. Find out what they're doing—and how a new generation of computers based on Intel's Wired for Management Initiative can help.

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Executive Summary

Total cost of ownership (TCO) is in the spotlight—and for good reason. By better managing the computing environment, IT can not only reduce TCO but make the company more versatile, agile and competitive.

A new generation of PCs and servers based on Intel's Wired for Management (WfM) Initiative provides built-in management capabilities that enable remote management and centralized IT control. By coupling these WfM-enhanced computers with a comprehensive management strategy, IT can get control of TCO and turn the computing environment into even more of a competitive advantage. Specific steps include simplifying the computing environment to reduce complexity without sacrificing power and versatility, and automating management and support functions to lower labor costs.

Such changes yield measurable results. Hewlett-Packard Company estimates it is saving \$200 million yearly on support costs and Intel Corp.'s Help Desk has increased its call resolution rate to almost 90%.

Written by Jan Rowell (jrowell@teleport.com), a freelance writer who covers trends in business computing and manageability.

Taking Control

The power of today's networked computing environment makes IT more critical than ever to a company's ultimate success. In a world where businesses face the challenges of fending off threats, juggling mergers, jumping into new markets and meeting customers on the Internet, an IT group that provides best-of-class performance and capabilities can give the company a clear competitive edge.

Delivering that advantage—and fully realizing the power of the computing environment—depends on a highly managed environment where uptime is a given and new technologies can be deployed quickly.

That's why the much-publicized issue of Total Cost of Ownership (TCO) is so important: not because excessive ownership costs are a concern (although they are), but because high TCO is a tip-off that the company is missing out on some of the benefits a well-controlled computing environment can provide. If TCO is too high, chances are you're paying too much for support, your users aren't getting the service they need and your business isn't as agile as it could be.

Fortunately, technology is helping provide a solution. In September 1996, Intel launched its Wired for Management (WfM) Initiative, a drive to make systems based on the Intel architecture universally manageable and universally managed without sacrificing agility or performance. Now, a new generation of platforms based on Wired for Management guidelines is coming to market. As part of a comprehensive management strategy, these systems can play a key role in enabling IT to increase its control of the computing environment. As a result, businesses not only can reduce TCO, but also improve service, increase business agility and reap the full benefits of the networked

The key to achieving these benefits is to start with the understanding that reducing costs is only one piece of what you're trying to accomplish. The other (and some would argue more important) piece is to add value to the corporation by delivering the capabilities the company needs in order to run more efficiently and compete more effectively.

computing revolution.

"At the end of the day, the question every IT employee needs to answer is, "What did I do to make the company more competitive today?" says Louis Burns, Intel Vice President of Information Technology. "You have to look at TCO through the filter of making the company more competitive, making employees more productive and creating opportunities for the company. If all you ask about is TCO, you get the wrong set of answers."

Buzz Walker, Marketing Manager for Enterprise Desktop and Software Management at Hewlett-Packard, also emphasizes the risks of focusing exclusively on cost reductions.

"Cost is important and we need to manage it," he says. "But in the zeal to reduce costs, don't lose sight of value. If you take \$1 million in cost out of the system but it was providing \$10 million in value, what have you accomplished?" Talking about cost reductions





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TCO Without Sacrifice

Mike Winkler Senior VP and Group General Manager, PC Products Group Compaq Computer Corporation

At Compaq, we have a rich tradition of incorporating into our products world-class management technology that lowers the cost of PC deployment and management. Partnering with Intel on the Wired for Management Initiative has resulted in several new baseline technologies which we have integrated with our Intelligent Manageability, including support for DMI 2.0, Remote Wakeup and Remote System Installation. These baseline capabilities, combined with the many features, services and partnerships associated with Intelligent Manageability and new Net PC Technologies, allow Compaq to continue delivering solutions that reduce total cost of ownership without sacrificing the performance, compatibility and adaptability of a PC.

without indicating the value side of the equation is, to Walker, "like giving me one side of a baseball score: Colorado Rockies, 4. Well, who did they play, and how much did the other team score?"

Given this dual focus on costs and value, there are three key steps to getting control of the computing environment, reducing TCO and increasing IT's value to the company:

- 1. Deploy WfM-enabled systems.
- 2. Simplify the computing environment to reduce complexity and variability without sacrificing power and versatility.
- 3. Centralize and automate management and support functions.

Step 1. Deploy WfM-enabled Systems

The first step is also the easiest. From now on, make sure that every PC,

mobile computer and server you buy provides the capabilities specified in the Wired for Management Baseline Specification (www.intel.com/managedpc/spec.htm) and that every Net PC conforms to the Network PC (Net PC) System Design Guidelines (developer.intel.com/design/netpc).

Initiated by Intel, developed with broad industry cooperation and implemented in a wide range of systems, the WfM Baseline spells out a minimum set of manageability capabilities for desktops, servers and mobile PCs. These built-in technologies, coupled with management software, can help your IT organization and your company in four areas:

- ▶ Asset management. How can you manage what you don't know you have? Built-in instrumentation identifies each system's internal contents and compiles a wealth of information for inventory control and asset management applications and databases. The instrumented data is based on open industry standards, increasing the interoperability of the computing environment.
- Durattended new system setup and remote control. A service boot feature makes it possible to configure or reconfigure a system remotely, even with a blank hard disk drive. IT can save on human labor—the most expensive element of support costs—and get new or transferred employees set up and productive more quickly. Built-in monitoring forestalls many problems, and when problems do occur, a technician can take remote control of the system to diagnose and repair it, without having to make a "house call." The time savings

Millions of PCs. Each one made to order. Does the word "hassle" come to mind? That's why Tivoli Systems supports Intel's Wired for Management (WfM) Initiative, a strategy that's making it easier to manage PCs with Tivoli's open, scalable, cross-platform framework. Tivoli's WfM support gives you control over individual desktops at a more granular level. And with ongoing collaboration from all of Tivoli's partners, you can manage your systems, networks and applications across heterogeneous environments—allowing your entire enterprise to function as one. With industry standards like WfM, Tivoli and Intel are lowering the total cost of PC ownership and making it easier for you to manage anything, anywhere. To get a better handle on your IT environment, visit Tivoli Systems Inc. at www.tivoli.com or call 1 800 2TIVOLI.

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WHEN YOU HAVE TO SERVE MILLIONS, ONE BY ONE, IT'S TIME FOR TIVOLI.



Tivoli

Lowering the Enterprise TCO

Martin Neath Senior VP, Tivoli Product Group

Tivoli's Wired for Management (WfM) support lets customers manage the widest variety of systems across their enterprise at a level of detail never before possible, using a single, policy-based management environment, TME 10*.

TME 10 utilizes WfM's standard DMI interface for greater access to and more detailed information about WFM-enabled computers to provide very fine granularity in enterprise systems management. Using WfM features such as Wake on LAN*, TME 10 can ensure that workstations are available for systems management tasks regardless of their power state.

Industry-wide efforts like WfM offer Tivoli customers open scalable systems management solutions that allow for the integration of third-party products. Together, Tivoli and WfM lower the overall TCO from the desktop to the mainframe by giving customers the power to manage anything, anywhere.

for both users and support staff are considerable.

- Off-hours maintenance. A remote wake-up feature, combined with remote boot and other remote control capabilities, makes it possible to run maintenance tasks unattended, during off hours. IT saves on automated software installations and upgrades, and increases end-user productivity by avoiding disruptions during work hours.
- Reduced power consumption. Builtin power management reduces the computer's use of power and lowers the cost of operating the system by allowing the machine to go to a low-power sleep state.

Together, these four capabilities help IT increase its control of the computing environment, provide better service and lower operating costs. They also allow businesses to better exploit the computing environment and thereby heighten the company's ability to compete in a changing business climate.

Step 2. Simplify the Computing Environment

WfM-enabled systems are available now, and if you do nothing more than ensure that all your future systems are WfM-capable, you'll have a good start on manageability. But what about your installed base?

Most large, geographically distributed companies have literally hundreds of different PC configurations to support, along with various versions of operating systems and net-

What WfM-Capable PCs and Servers Can Do for You

WfM-capable computers lay a foundation for control and agility via technologies that enable.

- Inventory control and asset management
- Easy software deployment
- Quick setup of new systems
- ▶ Off-hours maintenance

- Farly warning of potential failure, condition
- ▶ Remote problem resolut on
- ▶ Efficient pow r consumption
- ▶ Faster deployment of new capabiliti

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DELL

Reducing Hands-on Service

Susan Larson VP and General Manager, Dell Enterprise Systems

Dell Computer Corporation is committed to providing leading manageability technologies to customers around the world within an open environment based on marketdriven industry standards. The Wired for Management Baseline Specification and the Network PC (Net PC) System Design Guidelines are excellent examples of the value of this open approach. PCs and Net PCs based on these guidelines, along with other key manageability technologies and comprehensive management software, can significantly reduce TCO by minimizing system downtime, simplifying the tasks of configuring, managing and maintaining software and hardware, and reducing the need for "hands-on" service. The open interfaces of WfM-capable computers allow companies to deploy advanced manageability technologies across the enterprise through systems such as Dell's WfM-enabled OptiPlex* desktop PCs and OptiPlex N Net PCs.

work operating systems (NOSs). Simplifying that environment, along with instituting a centralized support strategy, are crucial steps to take, according to the CIO Institute in Bethesda, Md. The key is to remove some of the complexity and variability that create management headaches, without sacrificing user flexibility and performance.

Intel is a case in point. In 1995, the company had dozens of different computer configurations, four NOS environments and a variety of desktop environments. Support staff had to maintain expertise in all of them, and when a call came in, they had no way of knowing what system was on the other end of the line. Remote management tools were minimal, and only 28% of Help Desk calls were resolved on the first call.

Today, after a \$50 million investment, you can walk into any of Intel's 25 sites around the world and find a single desktop OS, a single NOS,

just a handful of standard client configurations and servers, and state-of-the-art remote management tools. Intel recouped its

Is There a Net PC in Your Future?

The Network PC (Net PC) is a new category of business PC that's designed from the ground up to be centrally managed and comes with a sealed chassis to help maintain standard configurations.

Net PCs offer the performance needed for effective business computing, including high-powered systems based on the Intel Pentium. II processor. Software is downloaded from a management server, giving IT the benefits of central control while also providing end-users with the power of local execution and the choice of stor-

ing data locally or on servers. Net PCs run the full range of Windows and Java applications and are ide of radata- and task-focused users who don't require hardware pandability.

Because they're designed for centralized configuration and control. Net PCs offer a good to tooly ure of anization's ability to manage systems remotely. As Into Views and Pat G. Isinger put at 'N t Py are like the fitness program. They induce out to do ll the thing views know you should do in the ret place.

investment in less than two years and now supports more than 50,000 users on the same budget that supported 26,000 three years ago. But the cost savings are almost incidental to the other benefits the company has seen.

"IT's job is making the company run," says Burns. "TCO was a result of what we went after, which was to enable Intel employees to do their jobs better. We're a better competitor because of these changes."

Many companies take a more gradual approach to simplifying the environment. Nike, for example, started by reducing the number of vendors it worked with. Next, it created a team to build consistency throughout the enterprise by developing standard configurations and deploying a single OS. Now, it's investigating asset management, software distribution and remote management tools.

As a result of these and other changes, Nike has significantly reduced its IT support staff. Equally important, it's providing better service and keeping its users productive.

"If we had a problem with a system, the support techs used to spend half their time figuring out what components were in the system," says John Jorgensen, Desktop Engineering Manager for Nike. "Now, they know what they're going to encounter."

intel.

Driving to Add Value

Will Swope

Vice President, Business Desktop Marketing, Intel Corp.

Intel drives to add value to the computing environment. As the leading supplier of building blocks to the computer industry, we strive to deliver more powerful CPUs, higher bandwidth interconnects, faster memory subsystems and greater manageability.

In September, 1996, we launched the Wired for Management Initiative to make PCs universally manageable and universally managed. Now, through state-of-the-art management technologies from Intel and other industry leaders, a new generation of PCs, Net PCs, servers and mobile computers provides built-in management capabilities.

The Wired for Management Baseline Specification and the Network PC (Net PC) System Design Guidelines are just a small part of what we're doing to make your business computing environment more manageable. We design advanced self-test and monitoring circuitry right into our Pentium® II processors, to minimize downtime and provide valuable data to management applications. Our comprehensive LANDesk® product family provides robust, integrated management tools to help IT deploy, manage and protect networked systems. And our new EtherExpressTM PRO/100 LAN adapter provides Wake on LAN* technology and other advanced manageability features.

Visit us at www.intel.com to see how Intel is working to deliver greater performance, capability and manageability for your business computing environment.

Step 3. Centralize and Automate Management and Support Functions

With a small set of manageable configurations throughout the enterprise, the third step is to use comprehensive software tools to centralize and automate the management of those systems—or, as HP's Walker says, "Simplify what you can and manage the com-

Wired for management.

The new Intel Pentium II processor.



Today's expanded desktop capabilities and the explosion of the Internet have made pentium corporate computing net-

works increasingly complex to manage. As a leading supplier of new technologies to the computer industry, Intel is committed to delivering solutions. Case in point: the new Pentium® II processor. In addition to advancements that make it the most

SYSmarkNT* for Windows NT* 4.0‡

Performance Comparison

Pentium® Processor with MMX™ Technology at 200MHz

Pentium® Pro Processor 200MHz, 256KB L2

Pentium® I Processor 266MHz, 512KB L2

Pentium® I Processor 300MHz, 512KB L2

Pentium II processor is just

provide valuable data to management

applications. Of course, designing manage-

the beginning.

ability into the

Through our "Wired for Management"

initiative, we're working with other PC industry lead-

- The most powerful Intel processor available today.
- Built-in manageability instrumentation.
- Dual Independent Bus architecture.
- Intel MMX[™] media enhancement technology.
- Dynamic Execution.
- Single Edge Contact (S.E.C.) cartridge.

ers like Compaq, Dell, Hewlett-Packard and IBM to create guidelines for a new generation of highly manageable systems. PCs, Network PCs and servers based on those guidelines can help simplify network management and lower your total cost of ownership. To learn more about manageability and

powerful Intel processor ever available, it's also specifically instrumented for manageability. It contains monitoring and self-test the Pentium II processor, visit our Web site. circuitry that help minimize downtime and

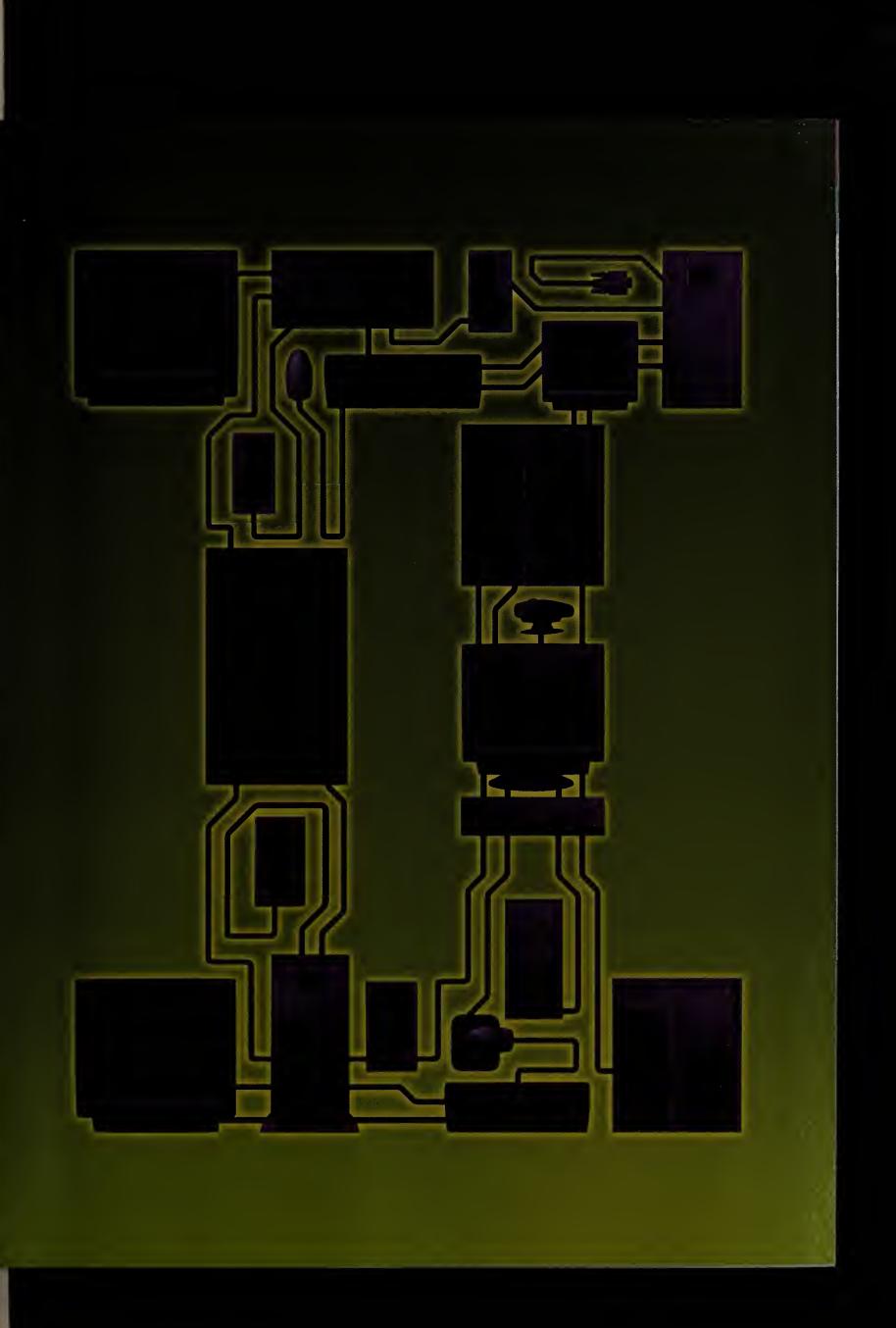
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➤ www.intel.com/PentiumII



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- 1

plexity that remains."

HP did just that beginning in 1992, and it has been so pleased with the results that it now offers consulting services and products based on its approach. By creating a common operating environment and instituting remote management practices, Walker says, the company is saving an estimated \$200 million annually on its 130,000-client environment, and is seeing increased uptime, higher productivity and faster deployment time for new capabilities.

Remote management tools are potent in their own right. By enabling support staff to remotely access and control end-user systems without leaving their own desks, they play a significant role in reducing labor costs, speeding up problem resolution and minimizing user downtime. Combine remote management tools with a streamlined computing environment and WfM-capable systems, however, and the benefits multiply.

System availability is a case in point. In a tightly controlled environment, many problems never have a chance to occur. For example, if you certify software applications and systems before deploying them, you catch many software conflicts before they reach the user. If a WfM-enabled system is about to have a hardware problem, such as a fan that's stopped working or a disk drive that's about to fail, the computer can notify the end-user or the Help Desk. The system can even identify the name and part number of the affected part, to minimize the chance of sending a technician out with the wrong replacement unit.

THM

A Competitive Advantage

Anne Gardner General Manager, IBM Commercial Desktop Systems

IBM strongly supports the Wired for Management initiative as a key element of our overall strategy of delivering highly managed PCs, so our customers can spend less time on their technology and more time achieving their business objectives.

Demonstrating our technology leadership and our commitment to industry standards, we have shared our robust Wake on LAN* technology, which is a vital building block of the WfM Baseline. IBM Client Systems PCs and IntelliStations* also provide other critical management features, including laser-etched serialized components for theft deterrence and asset tracking, remote system operating environment setup from a powered-off state, remote CMOS setup and BIOS installation, and much more. These capabilities enable customers to leverage IBM value for their competitive advantage.

Inventory data can be stored in a database, so if the user does encounter a software or other problem, the support technician can quickly review the configuration and know exactly what he or she is dealing with. With the user's permission, the technician can take over the system remotely and use down-thewire technologies to fix the problem. All of which adds up to reduced support costs, and, on the value side, increased productivity for end-users and support staff.

Deployment of new capabilities is another area where the synergy among the three steps creates dramatic benefits. In a typical IT environment, deploying a new software application means sending technicians out to check the PCs of the intended users, to find out if they have the required processing power, memory and storage capacity. Once that's determined and any necessary upgrades are made, another set of

technicians goes around with floppies or a CD-ROM to install the package on each desktop. If the technicians work during normal business hours, each user is interrupted at least twice.

In a managed environment, inventory data from WfM-capable systems can be stored in a database, so a technician can quickly see if users have the needed capabilities. Then, using a management server and taking advantage of the WfM capacity to wake up computers over the network, the technician can create a script that automatically installs the software during lunch hour or overnight, without interrupting users during their productive work hours. As a result, the software is deployed quickly, user productivity and business agility are enhanced, and support costs are lowered.

Costs and Value

The power and capabilities of today's Intel-architecture-based computing environments are giving companies whole new ways of doing business.

Now, a new generation of management technologies, embodied in Wired for Management-enabled PCs, Net PCs, mobile PCs and servers, is making those computer environments easier than ever to manage and control. By making WfM-capable computers the cornerstone of your management strategy and following the steps outlined here, your IT department will be well positioned to take control of the computing environment and use that environment effectively to reduce costs and increase IT's value to the company.

For more information about how WfM-enhanced computers can help meet your business goals, drop by Intel's Wired for Management web site, www.intel.com/managedpc, where you can calculate your TCO, read manageability case studies and get the latest manageability news.

ASSOCIATES ASSOCIATES

A Winning Combination

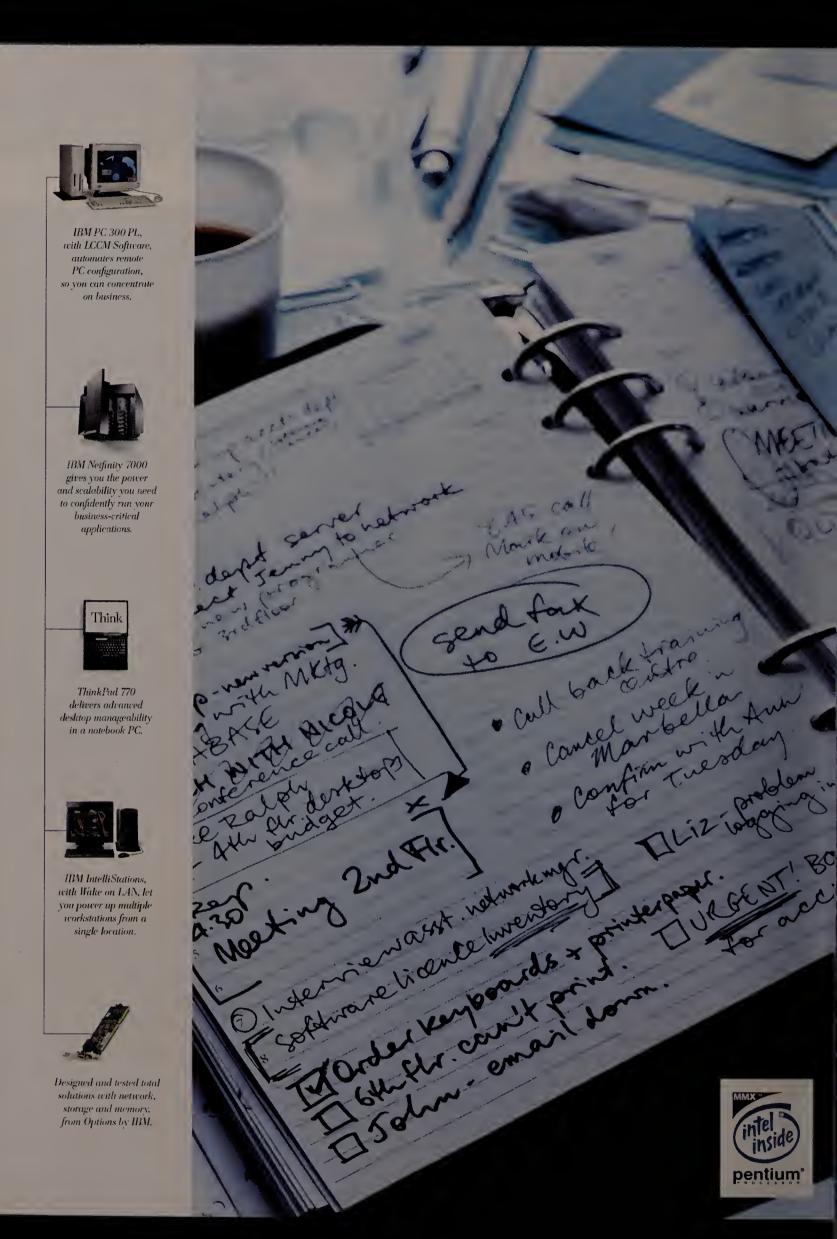
Yogesh Gupta Senior VP, Product Strategy, Computer Associates International

The combined benefits of WfM-capable hardware and sophisticated enterprise management software such as Computer Associates' Unicenter* TNG helps companies reduce operating costs and eliminate the causes of the most costly PC support problems.

Unicenter TNG can install the operating system, deliver additional software and configure the WfM-enhanced PC, without requiring any other hardware or software. Through Unicenter TNG's ability to take advantage of WfM hardware capabilities, PC managers can administer, configure and manage their networked PCs even when the PCs are powered down, including running antivirus protection scans after hours, running backups on networked PCs, and distributing software, operating system patches and other files to PCs over the network.

The winning combination of the designed-in management capabilities of WfM-enhanced hardware with Unicenter TNG software delivers unprecedented return on investment.





"if computers could manage to power up, back up and upgrade themselves, maybe I could manage my day."

solution

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Advice

Putting the Plan into Action:

Advice from the Experts

So you've developed a plan to control TCO and increase IT's effectiveness. Here are some suggestions from IT managers for putting your plan into action.



Any IT initiative has to solve a business problem. To justify the investment, it's important to communicate the value of the solution you're proposing. That means putting both the hidden costs of the eurrent status, as well as the expected return on your investment, on the table.

"Nobody's going to care unless they see and feel the eosts," says Britt Mayo, IT manager at Pennzoil. Pennzoil began simplifying its computer environment in 1993, and the vast majority of its users, from secretaries to engineers to Jiffy Lube*

store managers, use one of four desktop PC eonfigurations.

"On the other hand," Mayo continues, "people want to know what's in it for them other than low costs. That's when you point out everything that a standardized, well-managed environment buys them: we can respond to changing business requirements very flexibly, we can run virtually any software users need, we can deploy new capabilities quickly, and we can count on them to work across the organization."

Marketing the Program

Deploying manageable systems and software technologies is relatively transparent to users, except in terms of the increased service levels and uptime it provides. If you're changing the way business units buy their equipment or taking dramatic steps to simplify

"NOBODY'S GOING TO CARE UNLESS THEY SEE AND FEEL THE COSTS."

— Britt Mayo, IT Manager at Pennzoli, on getting buy-in for plans to control TCO

the computing environment, however, you'll be ehanging eorporate eulture, and that's generally the most challenging aspect of any major business initiative. To build support and avoid what Mayo characterizes as "reluctant compliance," IT managers recommend marketing your program to business units, divisions and end-users.

"Getting buy-in from the teams is absolutely eritical," says HP's Walker. He recommends meeting with business unit and divisional managers to set expectations about the upcoming changes and the results they can expect to see.

It also pays to recognize the importance of the company's administrative assistants and secretaries, according to Walker. "These are people whose daily productivity is highly affected by their PC," he says. "If they don't buy in, nobody buys in. If you do a good job with them, they can be great advocates."

Intel even rolled out an extensive communication plan to sell end-users on the bene-

Recommended Practices

Although every IT organization faces unique challenges, the following recommendations, culled largely from Intel's experience, are worth considering as you adduct ways to reduce TCO while increasing IT's contribution to the company.

Drive toward a homogeneous environment.

- Insure that all newly acquired systems support the Wired for Management Baseline, and that soltware, peripherals and other devices support industry man 12 bility standards.
- Minimize the number of PC and server configurations. Certify specific vendor models and configurations, including OS and NOS, peripherals, printers and appliations
- In the other hand, remember why you're buying PCs in the first place—to give users the tools they need to do then job most effectively. Create enough configurations to tive all users the power and features they need, and be flexible enough to accommodate unique requiretions. Encourage business units and divisions to base to viations from the standard configurations on demonshated business need rather than personal preference.
- It perade the installed base to match the defined configurations, and aggressively retire legacy systems. It is not be an ongoing man ag ment headache if you don't.
- Described by Buy the highest performance systems you can to support user requirements and avoid early retirement. Maintain powerful clients to take advantage of the upward performance curve in desktop systems, and don't sacrifice performance for manageability.
- Deconsider Net PCs for departments where users don't

require hardware expandability. (See sidebar on p. 10 "ls There a Net PC in Your Future?")

Centralize and automate management functions.

- Take advantage of "down-the-wire" troubleshooting during Help Desk calls to resolve problems without on-site visits, and to enable "just-in-time training." Shoot for first-call resolution rates of 90%.
- ▶ Create inventory and fault management databases to track user configurations, problem history and resolution logs. Log and track all problems as they come in and document resolutions and work arounds.
- Use advanced technologies to automate IT functions such as backup and software distribution and provide better user service. Since servers are so business-critical, automate their management first, if you haven't done so already; then move on to desktops, and finally mobile platforms.
- ▶ Don't neglect the importance of establishing desktop and server management policies that spell out alert response policies, escalation policies, security measures and the like

Use technology to help manage assets wisely.

- Create an asset management database to track moves, changes and additions of PCs and servers, then keep the database up to date via asset management and inventory tools and information gathered "over the wire" from managed systems.
- I stablish a waterfalling policy that redeploys hand me-down PCs to users who need less power, and removes systems that no longer meet the company guidelines.

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"Unicenter TNG enables us to correlate a wide variety of

information from desktops, servers and network devices."

Steven Ruegnitz

VP Lehman Brothers

of control for your complex and heterogeneous global network. Its dynamic auto-discovery ensures that your network configuration is current. The Real World Interface™ allows for

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Unicenter TNG





An Open Approach to Manageability

John Gannon General Manager, HP's Commercial Desktop Computing Division

The Wired for Management Initiative benefits business PC users by taking an open, non-proprietary approach to PC manageability. Combined with the WfM Baseline, Hewlett-Packard Co. offers one of the most comprehensive, non-proprietary, multi-tiered PC management solutions available. Hewlett-Packard's HP Vectra* commercial PCs, HP Kayak* PC Workstations, and HP NetVectra* Net PCs, which are fully WfM-capable, can take advantage of features such as Remote Software Configuration and Remote New System Setup. HP Vectra PCs and HP Kayak PC Workstations also contain a thorough DMI implementation and come with HP's award-winning, standards-based HP TopTools* PC management software, which lets users and administrators predict hardware failures, diagnose hardware problems, and manage inventory, configuration and security from any location on the network, even when offices are closed.

fits of the program. The company's COO and President, Craig Barrett, was an enthusiastic proponent of the program. He sent out voicemails to employees and was featured on a poster touting its benefits. Intel also published an employee newsletter to share information about the project's and results.

Building Success

Success breeds success. If you're making large-scale changes, take advantage of that fact by starting small, doing a good job and then expanding, so that you're building what Walker calls a "spiral of acceptance." Begin with a pilot project if you want to proceed with the least amount of risk, and don't hesitate to make course corrections as needed. Intel started by pulling systems into a lab for overnight repairs. Projections showed it would take far too long to finish the upgrades, so technicians developed a portable cart, nicknamed Medusa because of its dangling cables, that could do the job faster.

Once you've worked the kinks out, managers say it is both more economical and less disruptive to move rapidly. "In some ways, making major changes is like ripping off a Band-Aid,*" observes Intel Vice President Carlene Ellis. "You want to do it quickly, get the pain over with and get to the point where you start enjoying the benefits."

However, it's not all pain, by any means. As the project proceeds and you deliver successfully against expectations, the value you're bringing to the company creates a snowball effect.

"Success is catching," Ellis says. "Once you get the momentum going, the users and the business units start pulling the program and asking how soon you'll get to them. Then you're well on your way to an environment of ultimate productivity and ultimate cost effectiveness."

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Intel LANDesk solutions. Rocket science simplified.



Network management is no easy task.

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Windows ing your network.

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• Intel LANDesk Management Suite lets you manage all PCs on Windows NT* and Novell NetWare* networks from a single point of administration.

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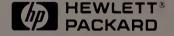
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LETTERS

Columnist is out of touch with the real world (meaning Earth)

ICHAEL SCHRAGE'S column "Rocketing IS salaries: The party's over" [CW, Oct. 6] seems to have been aimed at a planet other than Earth. Here, IS salaries have trailed inflation for 10 years and are now recovering somewhat. In the mid-1980s, a senior programmer/analyst could make about \$50,000 per year. With inflation, that's about \$100,000 now. Yet there are few \$100,000 jobs out there. Maybe if salaries continue to increase at double-digit rates for another few years, we'll get back to past levels.

Schrage writes that we would never have witnessed the evolution of enterprise computing if programmers in the past had been paid today's wages. I quite agree, but in the opposite sense.

I take it Schrage means it would have been too expensive. Au contraire, today's low salaries would never have attracted enough good people for progress to have occurred.

> Joshua Stern Los Angeles jrstern@gte.net

Michael Schrage ever dares to scale the walls of academia and enter the real world of business, he will discover a world governed by the laws of supply and demand. He will discover that just as he cannot will away the forces of gravity, he cannot will away higher prices when supply is short and demand is growing exponentially.

Managers who "reassert themselves" and demand that IS people work for lower-than-market wages will end up with incompetent, inept IS people, and their businesses will suffer. They will be eaten alive by much more competent competitors.

Peter Shaw Charlotte, N.C. peter.shaw@worldnet.att.net

Java is a language, not a religion

ow can Computerworld print a letter like Dan Pacek's with a straight face ["Read the fine print of Microsoft/Sun agreement," CW, Oct. 13]? He claims that Microsoft-licensed Java "will be Windows and ActiveX, which is not what the public wants." Can you run that one by me again? Windows is the most popular piece of computer software since the day they plugged in the Univac.

If anything, Microsoft ought to charge Sun in exchange for providing Java support — Java apps are about the only thing I've found that can make Windows NT crawl on a 300-MHz Pentium. God knows Sun isn't qualified to do it right.

It's a language, not a religion, Dan.

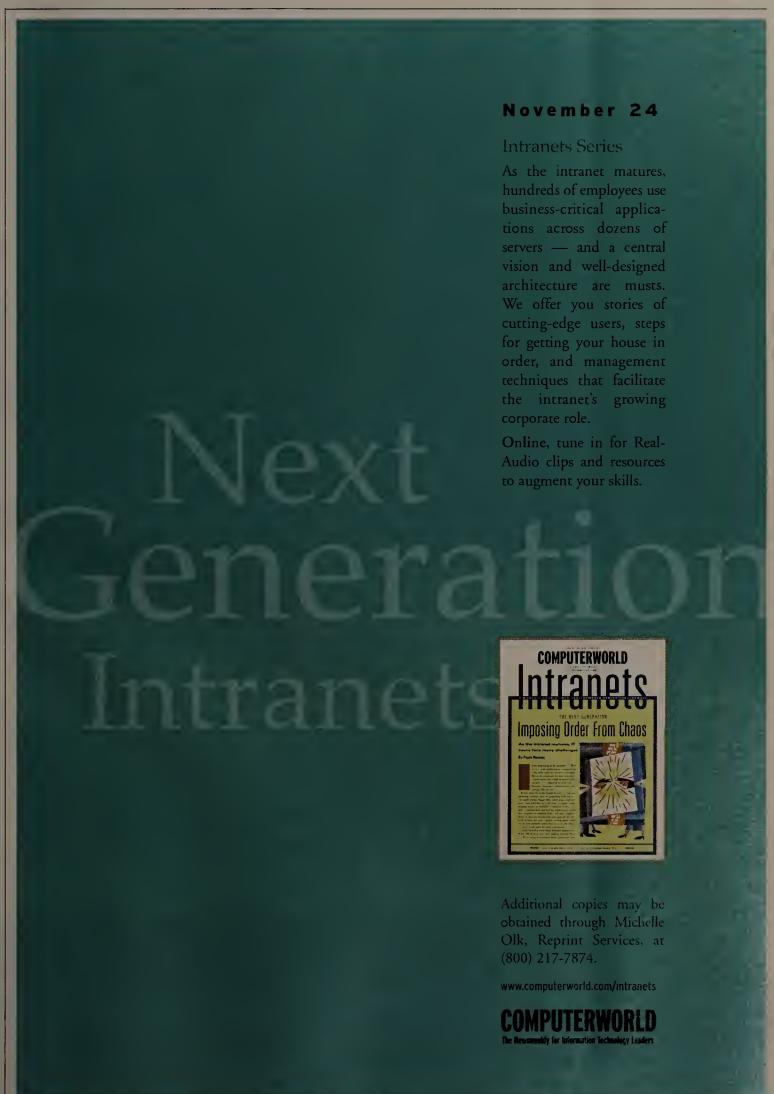
Jon McGuire Alltel Mortgage Information Systems, Inc. Jacksonville, Fla. jon.mcguire@alltel.com

Microsoft will get the message when customers stop buying

N THE OCT. 13 issue of Computerworld, there were several articles about the Sun/Microsoft war ["Users caught in Java cross fire," "Users fear true cross-platform will be casualty of Java war," "Dueling CEOs"]. In each, those inter-

viewed said they were going to wait until the dust settles before continuing or starting projects. They also said this war has put end users in the middle of this circus. Well, let's face it: The entire enduser community has allowed these computer giants (especially Microsoft) to tell us what we want for too long. We users should start telling Microsoft — or any other vendor that tries to tell us what we want — that we are not going to stand for it. We can do this by tightening our purse strings. It's time for Microsoft to start giving customers what they want, or risk losing us.

J. Fitzgerald II Roanoke Rapids, N.C





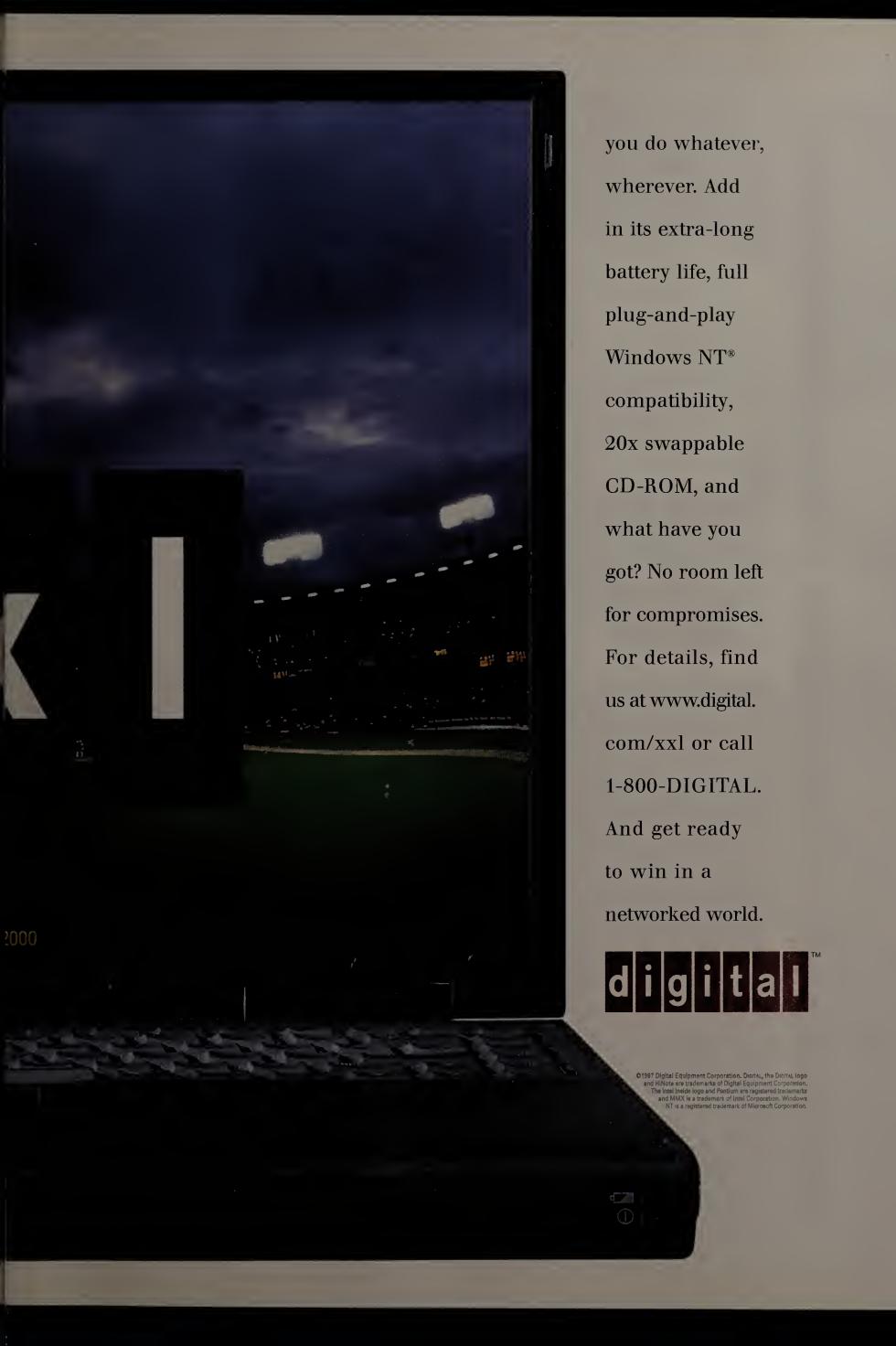




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SECURITY CHECKS

How often does your company consult security executives on the issue of risk management? (includes physical and information security)



Base: 179 security executives Source: Pinkerton's, Inc., Encino, Calif.

Y2K details mandated

U.S. Sen. Robert Bennett (R-Utah) last week introduced a bill that would require the U.S. Securities and Exchange Commission to make sure publicly traded companies disclose details about their year 2000 preparation. The disclosures would include progress toward remediation, a summary of costs already incurred, estimated future costs, expected litigation expenses, insurance policies and contingency plans. Bennett, a chairman of the Senate Subcommittee on Financial Services and Technology, has held four hearings on the year 2000 problem.

Texas sues Microsoft

The Texas Attorney General last week filed a lawsuit against Microsoft Corp. alleging that its nondisclosure agreements have interfered with a state antitrust investigation of the company. Microsoft defended its agreements, claiming that they are "standard in the software industry." The lawsuit claims Microsoft's agreements require its business partners to inform Microsoft before releasing information to antitrust investigators, which state officials said interferes with their ability to conduct confidential investigations. A hearing on the motion is scheduled for Nov. 24.

Mercedes-Benz tries just-in-time

Dan Zirbes said Mercedes-Benz had to look outside for IS skills to build "most cost-efficient plant in America"

By Thomas Hoffman

A WARNING TO the Big Three automakers: The Germans are here, and they're using aggressive pricing and a sophisticated manufacturing system to challenge those humongous profits you have been piling up in the sport utility vehicle market.

Last month, Mercedes-Benz

U.S. International, Inc. began to ship its M-Class All-Activity Vehicle from the company's first non-German manufacturing plant in Vance, Ala.

With prices starting at \$33,950, the M-Class is just a few thousand dollars more than a Jeep Grand Cherokee or a Ford Explorer. The plant raises Mercedes, page 52

Bristol-Myers CEO demands massive supply chain fix

BUSINESS

By Randy Weston

WHEN Charles A. Heinbold Jr. took over as chairman of \$17 billion pharmaceutical giant Bristol-Myers Squibb Co. in late

1994, he ordered executives to streamline global opera- AUTOMATION tions enough to add

\$1.5 billion to the bottom line. One of the most significant projects was the re-engineering of the company's \$3 billion global supply chain.

The task meant assembling a team of 200 business and information systems people to implement R/3 business process automation software from SAP AG, based in the U.S. in Wayne, Pa. The result: a more efficient production and distribution process that the company expects will save \$150 million per year.

THE BACKBONE

R/3 will be the backbone of the system that links businessprocess applications, according to David Edelstein, vice president of information management at Princeton, N.J.-based Bristol-Myers. The company's critical software includes Irving, Texas-based I2 Technologies, Inc.'s advanced planning and scheduling applications and supply-chain management software from Manugistics, Inc. in Rockville, Md.

It is a task that Edelstein said was sorely needed to ensure information flowed uniformly among all divisions of the company. "When the global procurement group wanted to know

> how much cardboard was used worldwide, we had to comb through 14

accounts-payable systems to figure out how cardboard was coded in each system. It was a nightmare," he said.

With the new system, code for cardboard or any other item is the same throughout the Bristol-Myers, page 52

BEST PRACTICES

Feds win big in less-publicized IS projects

By Gary H. Anthes WASHINGTON

GLANCE AT the federal government's efforts to modernize tax, air traffic control and weather

systems, and might you well conclude that Uncle Sam is utterly clueless when it comes to information systems. But in a recent study of less highly publicized projects, governmentindustry team for optimism. A recent re-



"It's responsible management to report back to your owners"

port by the federal Chief Information Officers Council and the Industry Advisory Council details 20 success stories, including the following:

■ A Defense Department medical supply system based on electronic data interchange is returning \$2.6 billion over 15 years on an investment of \$662 million, has reduced inventory Feds, page 52

Co-op farms out IS to third party

By Jaikumar Vijayan

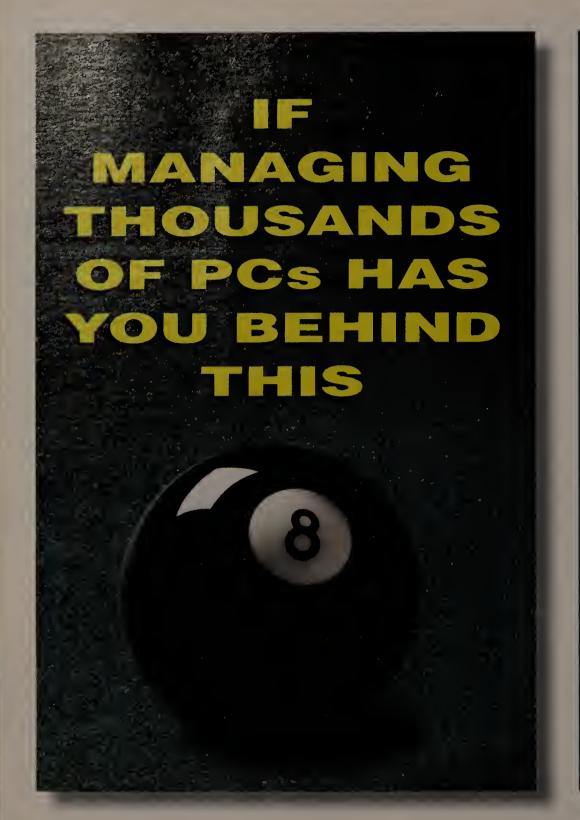
AS PART OF a major business process reorganization that was launched in 1995, Farmland Industries, Inc. decided to centralize and standardize its information systems operations and look for ways to sell IS services to third parties.

To achieve those goals, the \$9.8 billion farmers cooperative, which is based in Kansas City, Mo., earlier this year spun off its 1S organization into a separate entity jointly owned Co-op, page 51

DOING IT TOGETHER

Why some customers and vendors are teaming up on IT outsourcing ventures:

- Lets both parties retain ownership and key management roles
- Fosters more cooperative working relationship between customer and vendor
- Holds potential for customer to make profits selling IT services to third parties
- Lets vendor expand into new sectors of the IT services industry





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The rise and fall of Apple is a page-turning soap opera

They should never have called it the "Synergy Room." Because at Apple Computer, Inc., that conference space seemed to be the place where, after a great start, nothing went right and nobody worked well together.

In his book, Apple (Times Books;

\$27.50; 442 pages), Jim Carlton chronicles all the events that led a brilliant start-up — one that helped hatch the PC revolution and gave the computer industry millions of new users — to the brink of failure. Along the way, Carlton details the don'ts every business should avoid.

WHEN WE WERE YOUNG

The beginning, of course, was exhilarating. Steve

Jobs drove the Macintosh design team to create something "insanely great." As Apple CEO, former PepsiCo, Inc. executive John Sculley created a world-famous brand name.

Engineers slept in Apple's Cupertino, Calif., lobby to beg for job interviews. The Macintosh leaped off store shelves as IBM cloners and Microsoft's operating system lagged far behind.

For a while, Apple executives — fearful they would give away the crown jewels — faced down arguments to open up the Macintosh for others to sell and enhance. Among key initiatives shouted down by a vocal minority was a plan to license the Mac OS (a 1985 memo from

Bill Gates suggests how to do it). Another was a version of the Mac OS that would run on Intel Corp. chips (refused because it would compete with Apple's deal with IBM to build PowerPC machines).

A lot of this is well-known, of course,



In his book, author
Jim Carlton chronicles
all the events that led
Apple, a brilliant startup, to the brink of
failure

but Carlton, a Wall Street Journal reporter, puts the stories into one encyclopedic guide to Apple's corporate soap opera — which continues today with Jobs again in charge.

My one quibble is that Carlton throws out so many names of executives and project engineers that it can be tough to keep them all straight.

But through Carlton's work comes not only a clear history of the PC industry, but also key business lessons. Among them: Don't run your company on emotion and ego; don't rely on consensus to make tough decisions; and don't be afraid of working with other companies for common benefits.

— Michael Goldberg

Companies bend to keep telecommuters productive

Nortel establishes separate help desk

By Kim Girard ORLANDO, FLA.

MANY COMPANIES nationwide are adopting telecommuting programs to offer more flexibility, save money or deal with space issues.

Nortel Corp., for example, expects that more than 3,000 of its 68,000 employees will telecommute one to five days per week by the end of the year.

To cater to home users' unique problems — often involving an Integrated Services Digital Network connection, a problematic telephone line or a modem configuration snafu — Nortel has established a separate 15-person help desk, said Tony Smith, senior manager of telecommuting services at Nortel.

"The help desk [used to take] two

weeks to answer a problem," Smith said. "We needed a help desk that catered to remote users."

But flexible support isn't the only challenge telecommuting presents. There also is the question of how to use the space left behind.

"Obviously, the way we've designed space doesn't work," said Barbara Reeves, virtual office program manager at The Boeing Co.'s commercial airplane division in Seattle, which has a telecommuting pilot program.

"We're trying to come up with something that's designed to the way you're doing work," Reeves said.

She said the challenge is working with facilities managers who operate within a separate department and control money needed to make changes.





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Nova inks \$542M deal to outsource with IBM

By Jaikumar Vijayan

COMPANIES ARE forging ahead with outsourcing deals, despite the well-publicized disintegration of some high-profile contracts.

The latest to move forward is Nova Gas Transmission Ltd. in Calgary, Alberta, the largest carrier of natural gas in North America, which recently inked a \$542 million outsourcing deal with IBM and DMR Consulting Group, Inc. Under terms of the deal, Nova will outsource all application development, technology enhancements, maintenance and support functions to DMR.

IBM will take on operational responsibility and all desktop support functions. Nova, meanwhile, will retain a huge enterprisewide SAP R/3 implementation project.

The company has transferred most of its approximately 500 information systems personnel to both outsourcers but will retain about 15 development staff to

WHY NOVA OUTSOURCED IS

- Scarcity of labor resources for key projects
- Access to broader skill sets and wider range of IS services
- Access to specific application development expertise
- Cost reductions

handle new core projects.

The outsourcing deal will give Nova access to a broader range of services and skills and to specific application development skills, such as enterprise resource planning. It also is expected to trim the \$100 million that Nova spends annually on IS operations, according to Bruce McNaught, vice president of internal resources at Nova. He didn't specify the amount of anticipated savings. □

Co-op farms out IS

CONTINUED FROM PAGE 47

with systems integrator Ernst & Young LLP.

The idea is to leverage the operational experience of Farmland's IS organization with Ernst & Young's application development skills to sell a wide range of services back to Farmland and, eventually, to third parties.

For example, the two companies are implementing SAP AG's R/3 software enterprisewide and consolidating multiple applications spread across the corporation into more centralized systems.

The joint venture company, One-System Group, is expected to take in between \$70 million and \$80 million annually selling information technology operational and business process outsourcing services to Farmland and to more than 500 farmers nationwide who represent the Farmland Cooperative System, according to Chief Information Officer Kent Nunn.

The standardizations, process changes and streamlining of Farmland's IS operations are expected to save the company \$40 million per year, Nunn said.

If the venture succeeds in achieving those ambitious goals, Farmland will be among a handful of organizations to have pulled off a true joint operation of this kind, analysts said.

Under the deal, Farmland and Ernst & Young will share equally in the costs, profits and liabilities. So far, Farmland has transferred its entire 400-person IS unit to OneSystem and Ernst has transferred about 25 full-time professionals.

"The only ventures I have heard of similar to this have all been unsuccessful," said Susan Scrupski, an analyst at Technology and Business Integrators, Inc. in Woodcliff Lake, N.J.

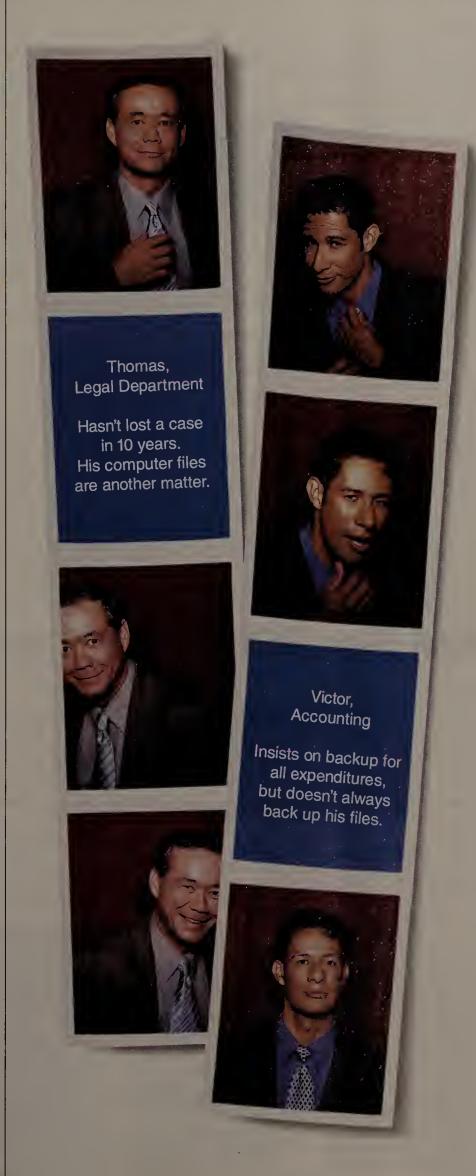
Two notable failures this year have been Transquest, a joint venture between Delta Air Lines and AT&T Corp., and one between Mutual of New York and Computer Sciences Corp.

"The reason these things fell apart is because they were never really autonomous. They basically were trying to serve two masters: the two founding companies," Scrupski said.

Six months into the deal, both Farmland and Ernst & Young acknowledge some of the challenges involved in making their joint venture work, but both companies remain bullish.

So far, the new venture has started providing IS services to Farmland. OneSystem also recently decided to further outsource Farmland's data center operations to integrator Systems Management Specialists — a move that will save Farmland \$14 million to \$15 million in the next five years in labor and infrastructure costs

"We continually are challenged from a communications standpoint. It is a confusing time for all the people involved [because] of the dramatic changes in the way that service is delivered and the way we interact with our customers," Nunn said. "But the venture gives Farmland a way to use technology to capture business new opportunity," he said. □



Mercedes tries just-in-time

CONTINUED FROM PAGE 47

the bar on manufacturing, taking the concept of just-in-time manufacturing to the next level with something called just-insequence manufacturing.

With just-in-time manufacturing, auto components such as mirrors and seats are typically built weeks in advance and delivered a few days ahead of production schedules.

Using just-in-sequence manufacturing, once Mercedes-Benz puts a vehicle through its paint shop, a computer system sends an order to a supplier such as Johnson Controls, Inc. in Milwaukee to deliver a dashboard within a few hours.

Just-in-sequence is risky. If an electronic data interchangebased system at Johnson Controls or another supplier crashes, Mercedes-Benz could be "vulnerable to a plantwide shutdown," said Robert Sigler, an automotive analyst at Sanford C. Bernstein & Co. in New York. However, the payoffs could be enormous. With 70% of its components being developed by other suppliers, Mercedes-Benz could slash millions of dollars in inventory management costs, Sigler added.

"This is the most cost-

Just-in-sequence is risky. If a system at a supplier crashes, Mercedes-Benz could be vulnerable to plantwide shutdown.

efficient plant in North America," said Sigler, who expects the \$300 million plant to pay for itself by 2001.

IBM IN CHARGE

That's pretty impressive, considering that the 2 million-squarefoot plant was an empty field just two years ago. With no IS staff to speak of, Mercedes-Benz U.S. picked IBM to implement and manage the systems needed to run the plant.

"We couldn't do this by starting to recruit and hire people to build an IS organization," said Dan Zirbes, information technology manager at Mercedes-Benz U.S.

IBM spent months toiling

with Zirbes and a skeleton crew to get the company's The Baan Co. enterprise resource planning software up and running. Zirbes wouldn't disclose the size of the IT investment behind the plant. However, analysts estimated the cost at less than \$10 million for hardware and software.

The plant met its deadline to build its first production vehicle last February, Zirbes said. The company expects to build 18,000 to 19,000 trucks this year and 65,000 next year when the plant ramps up to full capacity.

Perhaps the biggest challenge Zirbes faced was communicating with his German-speaking counterparts.

At the same time the U.S. plant was being built, Daimler-Benz was developing a bill of materials system that Mercedes-Benz U.S. had to tie in to its Baan environment.

To work through the language barriers, the U.S. unit had a bilingual consultant act as a "middleware translator," Zirbes said. □

Feds log some IS successes amid more-public failures

CONTINUED FROM PAGE 47

from a supply of 380 days to 10 days and reduced order and shipping time from 20 days to one day.

- A client/server system at the Food and Drug Administration is saving U.S. businesses \$1.2 billion over seven years by streamlining import processing.
- An intranet-based federal property management system will return its initial investment in 23 months while reducing information access time from days to minutes.

The GSA's Public Building Service site offers a central point for information about real estate and services for government agencies

"It's responsible management to report back to your owners taxpayers and the Congress — what they are getting for the \$40 billion to \$50 billion the government invests each year in IT," said Alan Balutis, deputy CIO at the Commerce Department and chairman of the committee that found the best practices. "There really are a lot of things that demonstrate a solid return on investment, and people should see that the landscape isn't totally bleak and

The projects range widely in application, size and technology, but certain elements recur: use of commercial, off-the-shelf products; outsourcing; use of the Internet and World Wide Web; rigorous focus on performance metrics; and intimate involvement of end users.

Other factors include a growing tendency among government agencies to focus on their core missions and outsource IS projects, according to government IS consultant Warren H. Suss, president of Warren H. Suss Associates in Jenkintown, Pa. Agencies are also increasingly turning to commercial ap-

plications rather than relying on custom development. And they are evaluating systems by useroriented metrics - such as time to process a payment claim — rather than IS metrics such as MIPS or bandwidth, Suss said.

The Environmental Protection Agency won a best practices award for its Envirofacts Data Warehouse. It knits together and offers to the public 80G bytes of environmental data — information previously

available piecemeal and only to EPA specialists.

The system whose development was outsourced uses the Web and commercial client/servdatabase and geographic information system (GIS) products. "Technology

became

friend rather

than our fear," said Envirofacts director Pat Garvey. The Web site got 800,000 visits last month, he

AGENCYWIDE EXPERTS

The project was a success in part because the project team, "instead of being IT techies," was made up of environmental experts from across the agency, Garvey said. He said he didn't go to the CIO for funds for a big, agencywide project — a strategy that wouldn't have worked given budget constraints. "We've been very creative; we've gone to individual offices that are trying to solve public access problems or data integration problems or GIS problems or data standardization problems and said, 'We'll take the money you have in your budget for that problem, and we'll solve it for you.' "

Nine of the 20 projects used Web technology. "Making customer service and data sharing Internet-oriented is just taking all kinds of risks and complexities out of development projects," said Philip Kiviat, the Industry Advisory Council's liaison to the CIO Council.□

Bristol-Myers CEO demands IS overhaul

CONTINUED FROM PAGE 47

company. The 25,000 employ- maintaining the processes beees who will use the new software — about half the company's staff — can easily call up

that kind of data to better plan use of supplies and product delivery.

Customers can now get a single bill for all business they do with Bristol-Myers, whether they are ordering Clairol shampoo, Ban deodorant or any of the 200,000 other products the company makes.

"Wal-Mart does not want an invoice from Clairol, an invoice from consumer medicines

and an invoice from prescription medicines," Fdelstem said. "They want a single electronic transaction, and we need to get it to them."

As enterprise resource planning systems become more powerful and more critical in

hind the business, they are becoming more complex to manage.

To tackle the problem, Bristol-Myers' implementation team will remain in place after the project is complete to maintain the software and roll out upgrades.

Jim Shepherd, an analyst at Advanced Manufacturing Research, Inc. in Boston, said that is a good approach. User companies, he said, need to be prepared to dedipermanent cate staff to the soft-

ware's management.

Bristol-Myers'

David Edelstein:

single electronic

transaction, and

Customers "want a

"Most companies are still in the early implementation phases, so they aren't yet dealing with the problems of release management," he said. "Once you get these teams together, you need to leave them in place. This is the first asset a company has bought that begins changing the minute they bought it."

Five Bristol-Myers sites went live with the system Sept. 1, and more than 20 others are due to start by the end of next year.

By the end of 1999, all the company's 65 sites in 150 countries are expected to be connected to the system.□

RELATEDLINKS

For these and other related links, point your browser to www.computerworld.com/links/ 971117bprlinks.html

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► Business Process Redesign: An Overview http://www.brint.com/ papers/bpr.htm

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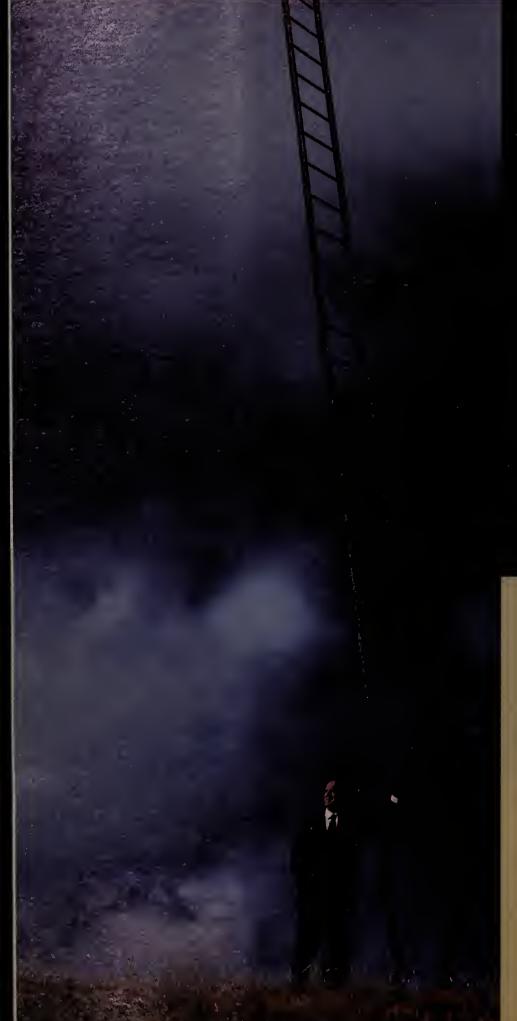
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Client/server mail system

Source: Creative Networks, Inc., Palo Alto, Calif.

Solaris browser

Microsoft Corp. announced availability of a preview release of its Internet Explorer 4.0 browser for Sun Microsystems, Inc.'s Solaris operating system platform. It is the company's first Unix browser release. Also available for testing is the second Internet Explorer 4.0 preview release for Windows 3.1. The final versions for the Windows 95 and Windows NT platforms shipped in September.

<u>Netscape HR package</u>

Netscape Communications Corp. will resell Employee Information System software from human resources software developer Enwisen in Novato, Calif., the two companies announced last week. Enwisen's software automates the exchange of information, such as 401(k) or health plan options, between a company's human resources department and its employees. A license that would service 2,000 employees costs \$100,000.

AT&T rocks

AT&T Corp. and the alternative rock group The Verve Pipe will test a new technology for sending compressed, encrypted CD-quality music over the Internet. The technique's algorithms allow a three-minute song to be downloaded at 28.8K bit/sec. in nine minutes. The A2B Music player software, as well as an as-yet unreleased live version of a Verve Pipe song, will be available at www.azbmusic.com and www. thevervepipe.com.

Briefs Intranet project aims to heal Bosnia

▶ Volunteers tap in to 'net technology

"One of our major

efforts is to promote

independent media . . .

[and] improve access

to information."

- Janet Garvey,

U.S. Embassy

By Sharon Machlis

SOME U.S. volunteers are hoping that Internet technology will play an important role in rebuilding Bosnia-Herzegovina after its devastating four-year war.

Several groups are working to boost Internet access in cities where almost all communications were cut off by years of

And academics are trying to

reconstruct documents lost when Serb forces destroyed the National Library.

The latest high-tech effort, Project Bosnia, plans to set up an intranet in the Serb-held city of Banja Luka for independent journalists to communicate with one another.

"It's a useful step to open up some new channels of information exchange," said Henry Perritt Jr., dean of the Chicago-Kent College of Law, which is part of the intranet project.

Balkan experts say that media controlled by nationalist extremists spewing ethnic hatred contributed greatly to the war in Bosnia, which is why it is important today for independent media to be functioning in the

AT HOME IN BANJA LUKA

Project Bosnia, sponsored by the Chicago-Kent and Villanova University law schools, al-

ready has identified a home at the Banja Luka University-based media center for a donated Sun Microsystems, Inc. server.

I. V. Ashton, a third-year Kent law student just back from Bosnia, said he hopes the next step might be a

wireless connection across the former front line between journalists in Banja Luka and Sarajevo and eventually access to the wider Internet.

The intranet project meshes with U.S. government efforts to

Academics are trying to reconstruct documents lost when Serb shelling destroyed the National Library

bolster anti-Karadzic forces within Republika Srpska, the Bosnian Serb entity created by the Dayton peace accords.

Radovan Karadzic, charged with genocide and crimes against humanity, still holds power in most of Srpska and Bosnia, page 58

Intranet eases mutual fund merger pain

By Carol Sliwa

'net phone service dials up big savings

By Matt Hamblen

MARWAN ITAYIM runs a satellite network marketing operation from Cyprus, Greece, and makes nearly all his international telephone calls over the Internet.

His savings: about 90% over conventional international rates.

Analysts said that is the kind of cost-cutting that should persuade network managers in large companies to at least test an Internet calling service. Savings could be just as good for companies that call internationally, although domestic rates are too low to make Internet calling cost-effective in the U.S., analysts said.

Instead of paying between \$1.50 and \$2 per minute to his local telecommunications provider, Itayim pays only 10 to 15 cents per minute for calls to the U.S. from Cyprus.

Phone service, page 58



Net2Phone users can click on a keypad on a PC Interface to make a call

AFTER A LARGE mutual fund company in Houston merged with a London-based firm earlier this year, the chief technology officer realized an intranet would be the only sensible way to quickly link 17 far-flung offices.

The offices located around the world needed to be able to communicate and share information, but they didn't use the

same technology.

"The ability for us to get on common platforms is going to take years, frankly, and we just can't wait that long in terms of our business requirements," said John Deane, chief technology officer at Houstonbased AIM Management Group, Inc. AIM merged with Invesco Funds Group, Inc. in February to form a new Intranet, page 59

HERZEGOVINA

Mostar

Plans for an academic computer

network will link institutions in four

MONTE-

Bosnia taps in to Internet

CONTINUED FROM PAGE 57

opposes many provisions of the peace treaty that ended Bosnia's war in 1995.

"One of our major efforts is to promote independent media . . . [and] improve access to information, which is still pretty limited in Republika Srpska,"

said Janet Garvey, public affairs officer at the U.S. Embassy in Sarajevo. The U.S. government has given financial backing to the intranet plan, she said.

Project Bosnia earlier set up an intranet in the Bosnian capital of Sarajevo, which suffered years of heavy bombardment by Serb forces. Serb gunners targeted sev-

eral historic and cultural landmarks in the city, including libraries and museums that housed vitally important documents.

cities

That intranet, still in its early stages, will be used first by the country's courts and human rights office to gain access to electronic documents where paper versions are unavailable. Other projects across the country bring legal information via intranet to regional government offices.

In the longer term, university volun-

teers are trying to help rebuild the collection of the National Library, where millions of books and several rare historical manuscripts were destroyed.

"When the National Library was burned down in August 1992, the card

> catalog was destroyed along with most of the collection," said Andras Riedlmayer, a bibliographer at Harvard University's Fine Arts Library. Riedlmayer has worked on several Bosnia-related reconstruction projects. "They were left with no way of even identifying what it was that they lost."

OCLC, Inc. in Dublin, Ohio,

agreed to search its bibliographic database from thousands of member libraries for any Bosnia-related publications, creating a massive reference resource.

Enes Kujundzic, director of Bosnia's National Library, said the project will help not only people in his country, but also researchers worldwide who need information about the Balkan nation.

In addition, basic computer technology such as technical journals on CD is

vital in helping to rebuild the library's contents, he said. With entire collections of medical, scientific and other magazines wiped out in the shelling, it would be expensive and time-consuming to handle all new paper copies.

"We don't have much staff at our disposal," he said. "In addition to online access, CD technology is very important."

RARE DOCUMENTS

Another reconstruction attempt, the Bosnian Manuscript Ingathering Project (www.applicom.com/manu/ingather.htm), seeks to find researchers around the world who might have visited Sarajevo to study and photocopy some of the rare manuscripts that were destroyed.

So far, the project has identified scores of manuscripts and rare photographs, and sponsors hope one day to be able to give access to the copies over the Internet.

Future plans within Bosnia call for creating an academic computer network across former front lines, according to Kemal Bakarsic, an assistant professor in the library studies department at the University of Sarajevo.



Computer technology may help access information destroyed in the bombardment of the National Library

That would incorporate Banja Luka University, which is under Serb control; two universities in Mostar, now split between Croat and Muslim sectors; Tuzla University in that multiethnic city; Sarajevo University; and the National Library.

Such a network would create links among former colleagues who were separated by nationalism and war. Technology, Bakarsic said, is helping to rebuild the country.

'net phone service dials savings

CONTINUED FROM PAGE 57

"It means I save tens of thousands of dollars on phone calls over a year," Itayim said in an interview.

Itayim uses Net2Phone for his Internet calls, a service of IDT Corp. in Hackensack, N.J. As an independent distributor of Primestar satellite services for The People's Network, Inc. in Carrollton, Texas, he started using the IDT service nearly a year ago. He downloaded free software to his PC and prepays regularly for Internet telephone service by credit card

The service lets him call any phone, including cellular phones, from his PC over a 28.8K bit/sec. modem. Soon, he will upgrade to an Integrated Services Digital Network connection. He talks over a headset with earphones and a microphone connected to his PC. When connections get garbled or delayed, he can switch between two Cyprus-based Internet service providers to improve calling quality.

The Internet service costs him about a half-cent per minute per call on top of IDT's rate.

"The quality is good the majority of the time," Itayim said. "Most people don't realize I'm using PC-to-phone, and when I do mention that, they are quite surprised."

On a typical day of five hours of international calls over the Internet, he

said only 5% to 10% of the calls have problems, including garbled words or delays when one speaker interrupts the other.

QUALITY ISSUES

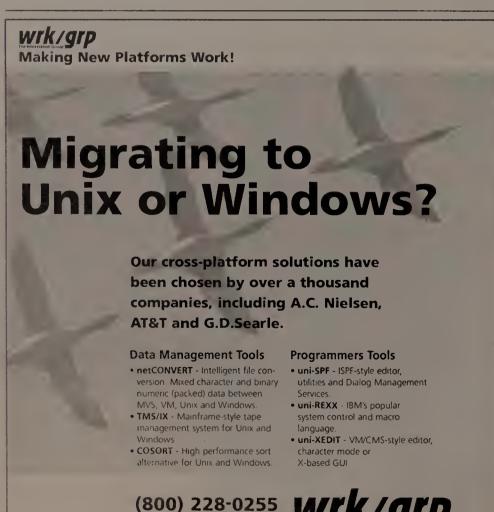
That reliability means "a large business wouldn't want to cold call [for a sale] on the Internet, but it depends on what you're selling," said Hilary Mine, an analyst at Probe Research, Inc. in Cedar Knolls, N.J.

Such quality concerns have kept large enterprises from buying Internet phone services on a large scale, analysts said. But dozens of companies provide either Internet phone services or hardware, including Internet gateway devices, and some of them have large customers with trials under way.

Lucent Technologies, Inc., in Basking Ridge, N.J., has had trials with business customers under way for a year but has had no large-scale takers.

IDT said that, after two years in the business, it has more than 100,000 customers — most of whom are residential users or small home-office users.

However, Rosemary Cochran, an analyst at Vertical Systems Group in Dedham, Mass., said companies might choose a trial service for workers within a company to call one another abroad. □



sales@wrkgrp.com http://www.wrkgrp.com

Intranet aids merger

CONTINUED FROM PAGE 57

company, Amvescap PLC.

Rather than do a lengthy cost-benefit analysis, Deane and his electroniccommerce group forged ahead and created the intranet, confident that others would see the merits once their project was completed.

"You could see the light in senior management's eyes," Deane said. "For once, here was a technology that wasn't two years late and \$5 million over budget. It just appeared."

With an annual global information technology budget of about \$100 million and an Internet site already up and running, Deane's group had most of the necessary tools at its disposal. The group also hired two outside consultants.

"I just took a little out of

here and a little out of there," Deane said. "Our intranet cost us a trivial amount of money."

Five people worked for three months at a cost of about \$200,000, Deane estimated, and equipment was no problem.

They took some back-end servers that weren't in use and added World Wide Web and certificate server software from Netscape Communications Corp.

The group also found it could deploy some of the same middleware that

had been used for the Internet site, because both were performing similar func-

AIM's Internet site not only provided general information to the public, but also allowed brokers and customers, armed with passwords, to access updated account balances and other data specific to their portfolios.

In a rather innovative twist, the Web site also offered audio updates with the latest financial news. When the market recently crashed,

for instance, the AIM subsidiary got its top economists to provide up-to-theminute commentary online.

Plans also call for audio to be used on the intranet site.

Activated earlier this month, Am-

vescap's intranet features an online photo directory of company employees, extensive information about various funds, research notes, portfolio ideas and market analysis data. And more is planned.

"We were amazed at all the information you could pull up quickly and easily," said Robert Graham, AIM's CEO and president. "It's a great way to keep all the units around the world apprised of what's going on."

Most companies, Deane said, tend to post only policies and procedures to their

"That isn't the way to really exploit the power of this," Deane said. "I think the power of this thing is to make our business units more productive, and therefore make more money."□



"You could see the light in senior management's eyes"



DRESSELHAUS COMPUTER PRODUCTS, INC. has announced the Black Magic Internet Sharing Server, hardware and software that provides 20 users with simultaneous Internet access using one telephone line.

According to the Ontario, Calif., company, users need just one dial-up Internet account, an office Ethernet network (either 10Base-T or coaxial) and one phone line. The stand-alone computer's software is dedicated solely to handling traffic between the Internet service provider and users. It works with all network operating systems. User computers must be running Windows 3.x or better or Macintosh System 7.5 or better.

The model with a 56K bit/sec. modem costs \$799; the model with a 33.6K bit/sec. modem costs \$699. **Dresselhaus Computer Products**

(909) 937-1137 www.dresselhaus.com

CONTIGO SOFTWARE has announced Itinerary Web Presenter 2.1, World Wide Web presentation software with real-time document delivery ca-

According to the San Diego, company, the software lets presenters deliver word processing, spreadsheet and other types of documents over the Internet into audience members' desktop applications during presentations.

The Java-based program includes compatibility with streaming audio and video, and pilot-controlled chat. Audience participants need only a Java-enabled browser.

The price is \$195 for one presenter and up to five remotely dispersed audience members.

Contigo Software (619) 278-5900 www.contigo.com

PRINTRONIX has announced PrintNet, hardware and software that lets users of Printronix's ProLine printers remotely manage and access the printers with a World Wide Web browser.

According to the Irvine, Calif., company, the PrintNet network interface unit has a built-in Internet home page, so administrators can call up the page over the Web and control printer setup and network

Users can access the home page screen to see online/off-line condition, print queue jobs and paper tray

It is available for 10Base-2 and 10Base-T Ethernet connections.

The cost is \$495 as a factory option or a field installation kit.

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Motorola

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ACT Networks 11.3% Hypercom 13.8%

Total: \$346 million

Source: International Data Corp., Framingham, Mass.

Extreme switching

Extreme Networks, Inc. in Cupertino, Calif., has announced the Virtual Chassis. It lets users connect eight Summit Fast Ethernet/Gigabit Ethernet LAN switches throughout a building and manage them as a single entity. Virtual Chassis can handle IP routing at 48 million packet/sec. and has a 64G bit/sec. switch capability. It will cost \$8,995 and will ship in the first quarter next year.

Gadzoox! Fibre Channel

Gadzoox Networks, Inc. in San Jose, Calif., has unveiled the Denali Fibre Channel switch and the Gibraltar GS hub. The \$12,250 Denali switch connects limited Fibre Channel loops with largescale Fibre Channel networks. The Gibraltar, which starts at \$6,000, lets users incrementally build Fibre Channel loops for storage without having to buy a new box. Both will ship by early next year.

Browsing workflow

JetForm Corp. in Ottawa lans a first-quarter release of InTempo, workflow software that supports World Wide Web browser clients and dedicated workflow clients. It works with Microsoft Corp.'s Outlook client and applications written in Visual Basic or PowerBuilder. Pricing for 100 users is \$20,000.

Briefs Notes conversions trip up users

By Barb Cole-Gomolski

IN THE ABSENCE of strong migration tools, some users of Lotus Development Corp.'s CC:Mail have taken their conversion to Notes into their own

Many companies face increasing pressure to move to a more scalable and manageable mail platform, such as Notes or Microsoft Corp.'s Exchange, as their volume of electronic mail grows and support costs rise.

Most expect to save money by moving to client/server mail, which costs less to manage than LAN-based systems such as

WHAT'S HOLDING THEM BACK?

CC:Mail users say the following has delayed their move to Notes:

- Lack of strong migration and compatible tools
- E-mail-centric sites see no reason to switch to Notes
- Some demand deeper discounts on Notes purchases
- Shortage of consulting services to support migration

NETWORK

SECURITY

CC:Mail. And more companies want to move to messaging platforms that support collaborative applications, said Mark Levitt, an analyst at International Data Corp. in Framingham,

Mass. But getting from CC:Mail to Notes has been difficult, especially for companies that have tens of thousands of seats.

Users at some of those orga-Notes, page 65

Detecting intrusions is only a start

By Laura DiDio

PROACTIVE INTRUSION detection technology for Windows NT and Unix networks will take center stage at the 24th Annual Computer Security Institute (CSI) Conference this week in Washington.

"Windows NT is the hottest single topic in the security industry right now. And despite what people think about the maturity of the Unix operating system, Unix security is also high on businesses' lists [of security concerns] because hackers are still pounding away at Unix," said Patrice Rapalus, CSI's director.

Jim Marshall, an information delivery security consultant at The Dow Chemical Co. in Midland, Mich., said his company

works diligently to keep up with the latest trends, products and advisories. Dow has 35,000 Windows NT users.

But educating Dow's users on the pitfalls of inadvertent security breaches is one

of Marshall's biggest tasks. "The worst security breaches we've had

involve users not paying attention to where they store documents. They often mistakenly store classified documents in public queues," he said.

HACKER THREAT

Careless users are a big concern, but so is the increasing number of hackers who are aiming at NT, said Bill Malik, an analyst at Gartner Group, Inc. in Stamford, Conn. "That's where the action is. A successful NT hack will get them 15 minutes of fame," he said.

The host of new intrusion detection devices go beyond audit trails and event logging software. Many were specifically de-

signed to help defend intranets, extranets and remote offices.

CyberSafe Corp. in Seattle will introduce its Trust-Broker Security Suite that runs on Windows NT, Unix and IBM MVS systems. TrustBroker provides users with a single sign-

key authentication mechanisms. The TrustBroker Suite creates individual trust relationships on one set of systems, then "brokers" that trust, vouching for a user to other machines across

on to multiple systems, and it

supports public-key and secret-

Network security, page 68

INTERNETWORKING

3Com switch aims at net core

By Bob Wallace

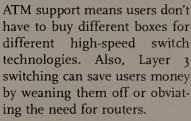
several 3Com users said the vendor's new advanced switch will meet their long-term networking needs, but analysts said the vendor still faces challenges and stiff competition in the data center switch market.

3Com Corp. last week announced CoreBuilder 9000,

a robust data center switch that can support Gigabit Ethernet or Asynchronous Transfer Mode (ATM).

It also has built-in highspeed routing, which makes it a Layer 3 switch. It is due in March.

The Gigabit Ethernet and



National Board of

Steve Lopez: This

forward for 3Com

is a great step

Medical Examiners'

ANOTHER OPTION

"This is a great step forward for 3Com's switching effort," said Steve Lopez, network manager for The National Board of Medical Examiners in Philadelphia. "ATM isn't in our future, but it's good to have a choice." He instead plans to deploy Gigabit Ethernet.

"This is an impressive box," said Peter Bissonnette, a communications design analyst at Lockheed Martin in Pittsfield, Mass. "If it does what they say it can do, I'll be able to eliminate one router and move the other out to the WAN."

The firm would use the Core-Builder 9000 to aggregate traffic from 25 smaller switches, which is what the two routers

3Com, page 68

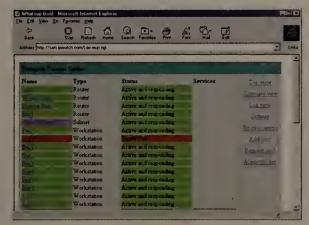
Simple solutions satisfy

▶ Users pick basic management tools

By Patrick Dryden

THERE'S ALWAYS a place for cheap and simple management software — even if strategic goals call for an industrial-strength tool kit, say users of a little-known network manager from Ipswitch, Inc. in Lexington, Mass.

"Big Unix platforms are worthwhile, but there's no need for a Cadillac when a Toyota will do," said Mark Watson, manager of network opera-Simplicity, page 68



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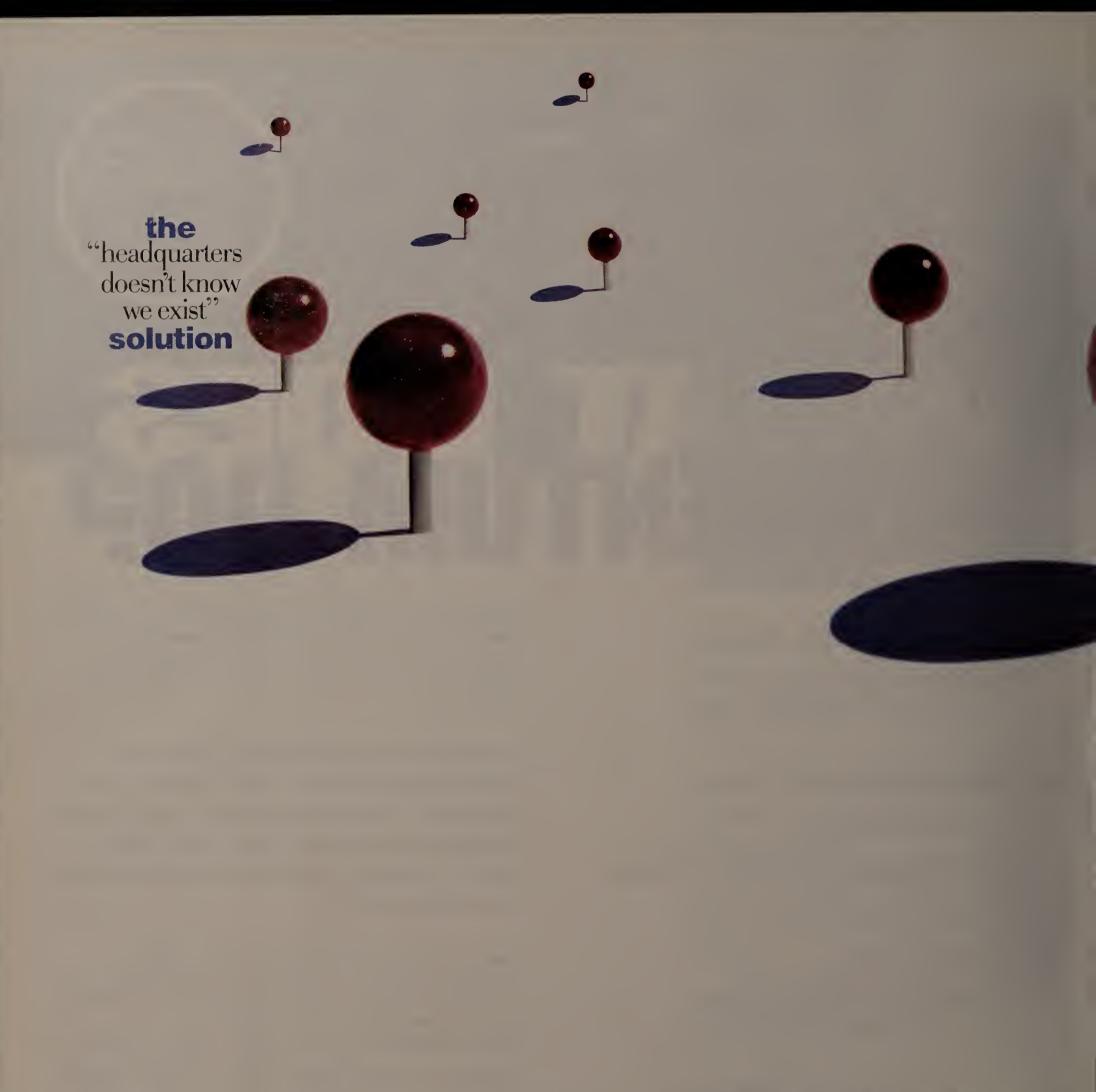
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Notes conversions

CONTINUED FROM PAGE 63

nizations said they need migration tools that not only convert E-mail, directory information and data archives from CC:Mail to Notes, but also tools that allow the two systems to coexist.

TOUGH TO MANAGE

Lotus offers such tools, but users call them difficult and unreliable.

"You can't migrate [to Notes] over the weekend," said Jim Arcure, manager of systems integration at New York-based Colgate Palmolive, which has 26,000 CC:Mail seats.

After struggling with an unstable Lotus CC:Mail Message Transfer Agent for nearly a year, the company wrote its own migration wizard to move data from CC:Mail to Notes.

To date, the company has moved 60 users in the IS department to Notes. "This [migration] is killing us," Arcure

said. He said he expects to move 20 or 30 users per day using the company's migration wizard.

Other users, such as Belcan Engineering Group, Inc. in Cincinnati, which has 1,000 CC:Mail seats, are taking a more phased approach.

The company lets users receive E-mail from the Internet in CC:Mail, and it is considering moving some users to Post Office Protocol 3 (POP3) clients.

Those clients will still work if the company decides to install Domino as a mes-

Senior network specialist Paul Badowski said a full migration to Notes may occur when the "technological and enduser requirements demand it."

Arcure said he considered POP3 clients an interim step between CC:Mail and Notes but determined that most users required the full Notes client.

Matt Cain, an analyst at Meta Group, Inc. in Stamford, Conn., said most companies can buy themselves a few years if they wish to stay on CC:Mail by taking advantage of the product's Internet

But in the long term, they will benefit from moving to a more stable mail system, Cain said.

Over time, the migration should get

easier as Lotus adds more CC:Mail-like features to Notes, makes the CC:Mail client more Notes-like and perhaps offers financial incentives to companies to move to Notes, Cain said.

Lotus officials acknowledged that the company's migration tools need work. Officials said that revisions are in the works that will make the tools easier to use.□

NEW PRODUCTS

MULTI-TECH SYSTEMS, INC. has announced the MT56128ZLX-NT, a combination Integrated Services Digital Network (ISDN) and 56K bit/sec. PC Card modem for mobile users.

According to the Mounds View, Minn., company, the card uses 56K or 33.6K bit/sec. speed over a telephone line, depending on the server or client modem being called. Its Basic Rate ISDN modem supports link speeds up to 128K bit/sec.

The card also can make calls to analog and ISDN services from the same single ISDN line, so users with ISDN can make data calls to remote applications that are serviced by analog modems.

The modem costs \$360. **Multi-Tech Systems** (612) 785-3500 www.multitech.com

TRAVELING SOFTWARE, INC. has announced Point B Remote Net-Accelerator, client/server software for Windows NT and Novell, Inc. NetWare platforms that speeds up remote file

According to officials at the Bothell, Wash., company, the software works by placing previously accessed files in the remote computer's cache and by grouping and transferring file requests in compressed blocks.

The software was designed to increase application response times by 300% over remote access server or virtual private network remote node connections.

Pricing begins at \$1,999 for one server and 10 remote clients.

Traveling Software (425) 483-8088 www.travsoft.com

MIDNIGHT NETWORKS has announced Avalanche/RA, a hardware and software tool for remote access performance testing in large enter-

According to the Waltham, Mass., company, Avalanche/RA is a Pentium-based workstation that can establish Point-to-Point Protocol connections on up to 64 asynchronous serial ports and send data traffic in both directions.

Avalanche/RA measures performance statistics such as data traffic latency and throughput, total packets sent and received, the number of attempts required to bring up a connection, the time required to bring up a connection, and packets dropped.

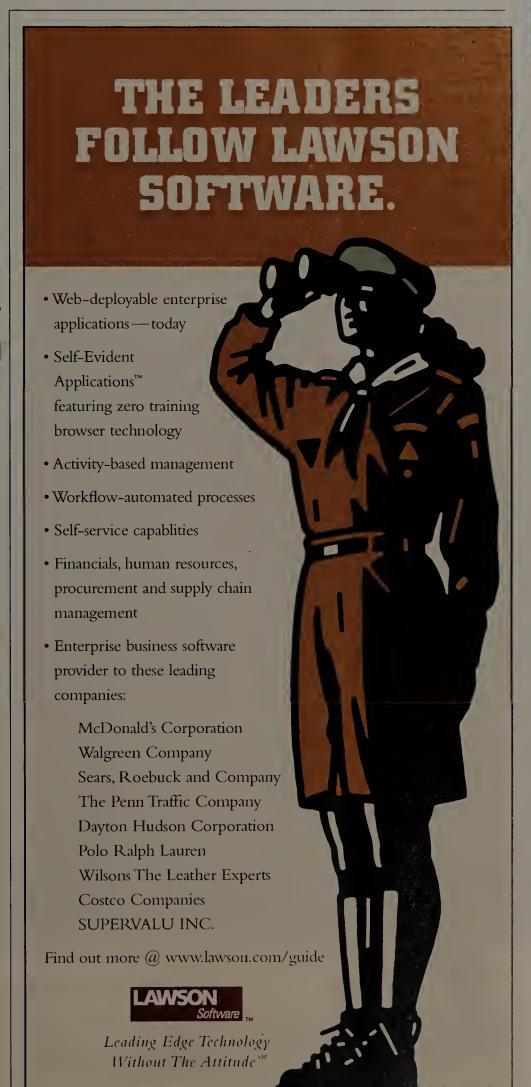
Avalanche/RA costs \$39,995. Midnight Networks (617) 890-1001 www.midnight.com

MANGOSOFT CORP. has announced networking software Medley97, that lets Windows 95-based PCs share disk space, memory and pe-

According to officials at the Westboro, Mass., company, the software can create a network with up to 25 PCs in which all the attached PCs share resources and act as both a client and server. For example, if 10 users contribute 250M bytes to the pool, a virtual Medley drive listed under "My Computer" will have a volume of 2.5G bytes.

A two-seat starter kit costs \$249. Additional seats are \$199 each.

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How you work

when they set you free,

however,

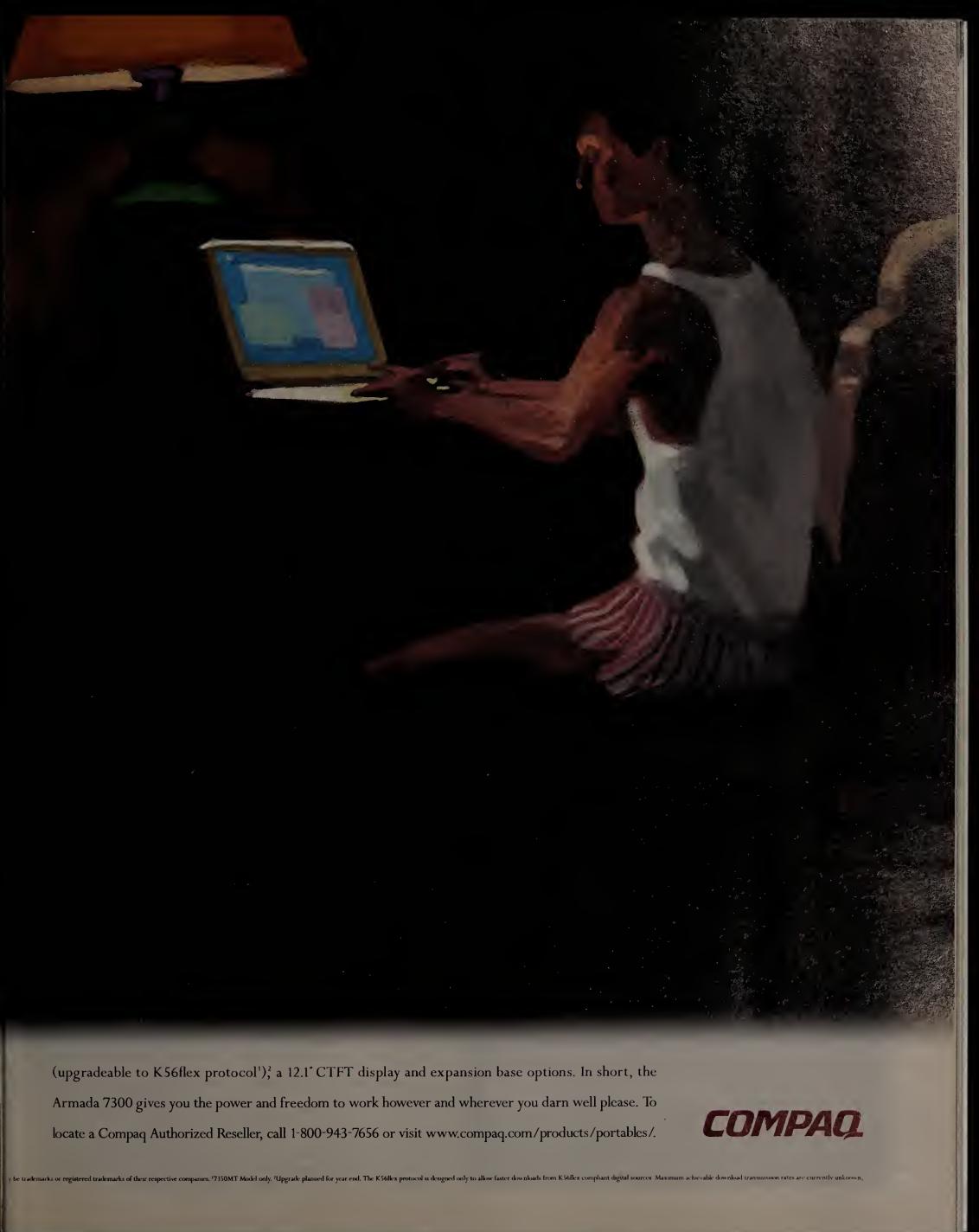
is entirely

up to

you.

The new Armada 7300 is the notebook that balances mobility with the high performance of a desktop. At only 6 lbs, it comes with up to a 166MHz Pentium® processor with MMX™ technology, up to 2.1GB hard drive, up to 32MB of RAM (upgradeable up to 128MB), a 33.6K modem





Network security

CONTINUED FROM PAGE 63

the enterprise. The TrustBroker Security Suite consists of a client, server and software developers kit. It is available now. Pricing ranges from \$578,000 to more than \$2 million.

Fortress Technologies Corp. in Tampa, Fla., will unveil its NetFortress Remote software. It includes a smart encryption capability that recognizes an unlimited number of "secure" network and user addresses, and automatically encrypts communications to those addresses. The NetFortress Remote will ship Dec. 8. Pricing will be announced at the CSI conference. The conference will feature seminar topics including basic computer security, advanced secure electronic commerce, and computer crime and forensic analysis. And attendees will get to talk to their enemies on the phone: There will be a teleconference with hackers in a special session Tuesday.

SECURITY ALERT

A recent survey on computer security found the following:

- More than half of all respondents reported unauthorized use of their computer systems within the last year.
- 47% of users reported a security invasion via the Web, up 10% over last year.
- 50% have no emergency response team.
- 60% have no network intrusion policy.
- 50% of the companies that have an intrusion policy still have no policy for preserving evidence.

Base: 563 respondents from government agencies, universities and Fortune 500 businesses

Source: Computer Security Institute, San Francisco: FBI

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Users laud 3Com switch

CONTINUED FROM PAGE 63

Steve Toy also sees Layer 3 switching as a router replacement. "We think we can use it to eliminate some routers in the interior of our network," said Toy, an assistant network systems engineer at SAS Institute, Inc. in Atlanta. That means he could move those boxes to the network periphery to be used on the wide-area network, he said.

"And as far as Gigabit Ethernet is concerned, we're thinking of it as something further down the road," he said.

Users are anxiously anticipating the CoreBuilder 9000, but analysts stress 3Com has challenges it must meet to attract users in the high-end switch market. Part of the problem is that 3Com sells three main high-end switches whose capabilities and purposes often overlap, analysts contend.

"That causes confusion with the buyer," said Craig Johnson, an analyst at Current Analysis, Inc. a consulting and research firm in Ashburn, Va. "On the surface, their positioning looks reasonable. But when the rubber hits the road, the question of 'Which one do I bet on?' is tough to answer."

But the product mix makes sense if users look at the CoreBuilder 9000 as the data center switch and use the other three products to feed it traffic, he said.

TAKING TOO LONG

But one analyst said 3Com is waiting too long to ship the new switch.

"3Com should have shipped these products six or nine months ago instead of [waiting until March]," said Tom Nolle, president of CIMI Corp., a Voorhees, N.J., consultancy. "Cisco [Systems, Inc.] has been sowing seeds in 3Com accounts."

Also, 3Com admitted it faces stiff competition from Bay Networks, Inc., which several months ago bought Gigabit Ethernet switch vendor Rapid City Communications, Inc. □

Simplicity

CONTINUED FROM PAGE 63

tions at credit-card processor Nova Information Systems, Inc. in Atlanta.

Ipswitch's WhatsUp Gold supplies the "first line of defense" - basic status reports, alerts, diagnosis — for Nova's 150node transaction-processing network without the hefty cost and training of the leading tools, Watson said.

Enhancements being introduced at Comdex/Fall '97 this week in Las Vegas may tempt more information systems managers to use the tool to fill some immediate mapping and monitoring needs.

Version 3.5, slated to ship next month, recognizes connections and devices running NetWare IPX from Novell, Inc. as well as TCP/IP intranets or extranets. Its browser interface can be modified for even simpler access by operators anywhere. And WhatsUp Gold can graphically reveal live statistics and store them for historical analysis.

"This is dirt cheap and tells us almost everything we conceivably need to know," said Bobby Anderson, webmaster at GEICO Direct in Washington.

The auto insurer manages its network with Optivity from Bay Networks, Inc., but Anderson watches his 25-node site for customers and internal users with WhatsUp Gold. "It's a reasonable way to monitor what really counts without making a strategic platform decision or budget investment," he said.

WhatsUp Gold runs on Windows 95 or Windows NT and costs \$695 for unlimited monitored devices.

At Elizabeth Arden Co., the tool "came in the back door from somebody skating the World Wide Web," said Steve Steffek,

a senior technical specialist. He had sought an easy way for help desk staffers to learn quickly about network outages at the New York-based makeup manufacturer.

"We can teach them to use WhatsUp Gold in five minutes, and within an hour they are customizing it," Steffek said. Now they see problems before they hear about them from the outsourcer managing their network using IBM's NetView, he said.

Setup is "incredibly quick" — two hours compared with a week-long course for OpenView Network Node Manager, the market leader from Hewlett-Packard Co., said Bob Brent, a network administrator at Aramark Uniform Services, Inc. in Burbank, Calif.

Though it's not the only tool Aramark uses to manage its 233-site network, WhatsUp Gold provides an easy way to monitor events and elements without deploying OpenView to 15 help desk staffers, Brent said.

THE BEST TOOL FOR THE JOB

The Windows NT platform and the Web are forcing down the cost and complexity of management, so IS managers can pick the tool that best fits the problem at hand, said Theo Forbath, a consultant at Northeast Consulting Resources, Inc. in

Simpler and less expensive Windows sions of popular Unix tools are available for help desks or casual users, and browser access is becoming common. Free tools similar to WhatsUp Gold can be found on the Internet. They include IntraSpection from Asante Technologies, Inc. in San Jose, Calif.

There's no question that strategic relations with big vendors still matter, Forbath said. But tactical tools can quickly pay for themselves. □

Software

Databases + Development + Operating Systems

Sybase goes mobile

Sybase, Inc. in Emeryville, Calif., has begun beta-testing a promised version of its mobile database that includes a Java Virtual Machine and can store multiple JavaBean components.

Adaptive Server Anywhere 6.0 is the first of Sybase's three databases to get support for Java and a common development environment that was outlined last spring.

Meanwhile, start-up Cloudscape, Inc. in Oakland, Calif., this month plans to start testing a Java-based mobile database that will compete with Sybase's product and similar offerings.

66 I've been in the technology wars for 15 years. I've lived through Oracle vs. Informix and most recently Netscape vs. Microsoft Internet Explorer. And you know what? Who cares? Our business is making life easier for users. Who cares if the tools to do that are written in CORBA or DCOM? 77

> - David Edelstein, vice president of information management, Bristol-Myers Squibb Co.

Compuware host apps

Compuware Corp. in Farmington Hills, Mich., plans to roll out new development tools to improve application deployment on IBM mainframes and midrange systems.

The Uniface Component tion Server will let the IBM S/390 and AS/400 act as component and data servers for Uniface applications running in Internet and client/ server environments. Pricing will be announced when the products ship in the middle of next year.



By Tim Ouellette

IF YOU MADE a desperate trade during the stock market plunge late last month, you can probably thank middleware for getting that trade through.

Even as stock markets were slammed with more than a billion daily trades, packaged middleware applications worked behind the scenes to churn those deals through, win or lose.

Middleware, in this case messaging middleware, lets applications on different computer exchange platforms smoothly, and it can hold that

data in secure "queues" if the receiving system is down or busy.

For example, at Discover Brokerage Direct, an online brokerage in San Francisco, it wasn't the middleware that caused the slowdown, it was the Internet.

"I had expected the slowdown to be in the processing on the back end," said John Mac-Ilwaine, Discover's chief technology officer.

But Discover uses NeonNet, software from New Era of Networks, Inc. in Los Altos, Calif. NeonNet takes downloads from a central Wall Street mainframe clearing system and updates Discover's Unix databases. That gives investors the exact information they need to trade online and then ensures that their trades will be reflected properly back to the central market systems.

"Should activity exceed normal transaction levels, the [middleware] queuing allows every-Middleware, page 70

Users cautious on IBM middleware

By Sharon Gaudin

CUSTOMERS ARE waiting to see if IBM's new middleware technology will keep its promise to give them more time to focus on an application's business logic by reducing the time they spend building the hooks and ladders of back-end communication.

IBM shipped an early release version of its Component Broker middleware to a small num-

ber of users last week with general availability set for the first quarter of next year. The middleware was designed to offer back-end connections, enabling users to treat legacy applications on diverse systems like objects that can be culled and dropped into new applications.

"What this is designed for is of critical importance," said Fima Katz, chief technology officer at Concord, Calif.-based

Concorde Solutions, Inc., the information systems arm of U.S. financial giant Bank of America Corp. "If Component Broker allows me to integrate with those back-end systems where I have all of my information, then that's what I'm looking for."

But Karen Boucher, director of The Standish Group International, Inc. in Dennis, Mass., is withholding judgment until she Users cautious, page 74

Java group offers spec

▶ Hopes to avoid 'Webtop' war

By Gordon Mah Ung

IN AN EFFORT to avert a war that would dilute the potential of thin clients and leave Windows unchallenged, vendors of Java and network computers are negotiating a common ground.

Lotus Development Corp.; its parent, IBM; Sun Microsystems, Inc.; and Oracle Corp. have announced a joint project called Webtop, or Webtop98. The specification, which would provide a common set of system services and application programming interfaces, was designed to assure developers that their Java applications will work unmodified on a range of network computers, PCs and other devices. Incompatibilities among such devices can create only havoc and benefit Microsoft Corp., observers said.

"Microsoft owns the leading user interface in the Microsoft environment. That is what's up for grabs," said Michael Sulli **Java spec,** page 70

REVIEW> Sapphire/Web Version 4.0

Sapphire melds Web/databases

By Ross M. Greenberg

IT тоок ме four days of battling installation problems to Java Development Kit 1.1). reach the conclusion that Bluestone's Sapphire/Web 4.0 is pretty cool — very much what the doctor ordered for solving enterprise World Wide Webbased database access woes. Accessing your database from pretty Web pages isn't a simple problem to solve if you want to provide for security and a true client/server environment.

I wasted time installing Sapphire/Web atop an older version of Java (Bluestone ships with

Related installation/configu ration error messages are nearly useless, and pertinent information on those and other installation problems are hidden away in otherwise good tutorials and manuals. This is a complex product, so time spent spelunking through those items is more of an investment than it is in Sapphire, page 75



REVIEW ► Sapphire/Web, Version 4.0

Bluestone Software, Inc. Mount Laurel, N.J. (609) 727-4600 www.bluestone.com

Pros: Powerful Web-to-database development package with thought-out bells and whistles. Interfaces easily with standard databases and ODBC. Nice GUI development environment.

Cons: Touchy about Java and server versions. Installation and configuration error messages aren't helpful. Learning curve is steep to start.

Middleware on the Street

CONTINUED FROM PAGE 69

thing to go through without losing the data," MacIlwaine said.

"That pretty much happened that week, with spikes during opening and closing times. Without the middleware, we would have been prone to traffic jams," he added.

In the past, most securities houses built their own proprietary middleware packages to handle trades and exchanges between different systems. But the high costs of in-house development and maintenance have led many of those businesses to accept packaged applications from vendors such as New Era; IBM; BEA Systems, Inc. in Sunnyvale, Calif.; and Tibco, Inc. in Palo Alto, Calif.

"Financial services are getting big-time into packaged middleware applications today," said Jim Johnson, chairman of The Standish Group International, Inc. in Dennis, Mass. "Today, if they try to grow their own [middleware], in a lot of cases it becomes a failure before it is even out the door" because of the limits proprietary systems place on how fast a firm can react to market changes today.

Although the Philadelphia Stock Exchange hadn't yet installed Talarian Corp.'s SmartSockets middleware when it survived last month's deluge, it still expects to get rid of its homegrown procedure calls

"SmartSockets will bring in fault tolerance that is not completely there with our own software now," said Thomas Wittman, vice president of trading systems

Observers said it is hard in many cases to pinpoint exactly how well the commercial middleware packages handled the high volumes because so many other pieces of the transactions could have had problems. And many firms did have bottlenecks that delayed trading and left investors at a loss.

Java group offers spec

CONTINUED FROM PAGE 69

van-Trainor, a program director at International Data Corp. in Framingham, Mass. "We have to stay tuned for the Webtop wars. The Webtop wars could seriously shift in Microsoft's favor if people deploying Webtops all deploy something different."

So far, the companies have released few details of what the specification will be or when it will be released. A Lotus spokesman said the company is aiming for the middle of next year.

"There hasn't been a bullet-point list the industry can bite into," said Ron Rappaport, an analyst at Zona Research, Inc. in Redwood City, Calif. Rappaport said many speculated that it would include file, print and directory services.

Rappaport said he hopes the specification will apply to other thin clients besides network computers to widen its appeal.

Chris Joblen, director of Internet business development at Cambridge, Mass.-based Lotus, said the spec won't exclude PCs and will be an open published standard. The companies will license the specification to manufacturers and software developers to maintain consistency.

Andrew Diamondstein, an analyst at Giga Information Group in Cambridge, Mass., said the companies have to be careful not to confuse the market by presenting Webtop-compliant hardware as a single type of device.

"If you can create one standard, you [create the idea] that it really is one platform. [The specification] could create some market confusion as to what the platform is," he said. □

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Users cautious on IBM middleware

CONTINUED FROM PAGE 69

sees the middleware and can gauge its ease of use and complexity.

"This sounds great. Critical. But IBM tends to get complicated," Boucher said. "I hope this isn't the case, but I need to see it."

Component Broker uses Common Object Request Broker Architecture (CORBA) to link browsers or other frontend applications to information and applications stored on disparate systems on the back end. It also adds common object services, transaction management and a component tool kit that offers a visual development environment.

Component Broker was designed to communicate with CICS servers and multiple databases, allowing developers to treat the applications like reusable chunks of software to speed the building process of new applications.

COMPONENT BROKER HIGHLIGHTS

IBM's Component Broker was designed to let users build applications using legacy applications, which may be on various back-end systems. Component Broker includes the following:

- Object-oriented middleware that connects disparate back-end systems
- A cross-platform CORBA that lets new applications communicate with legacy systems and lets legacy systems communicate with one another
- Connecting code that lets users treat back-end applications as objects that can be dropped into new applications
- A visual application development environment for managing the new objects

Boucher noted that Component Broker combines some of IBM's powerful middleware technologies — transaction management, object management and an object-oriented visual development environment — with CORBA's connectivity technology. She said Component Broker competes with Microsoft Corp.'s Distributed Common Object Model, Microsoft Transaction Server and MQS — single technologies that aren't packaged together.

Boucher also said that this technology, if it works, could mean a lot of time savings to the 58% of the middleware market that uses IBM technology. That's because writing code for this kind of connectivity generally takes up an estimated 70% of a developer's time.

But Boucher said she hopes Component Brokers' ease of use matches its power.

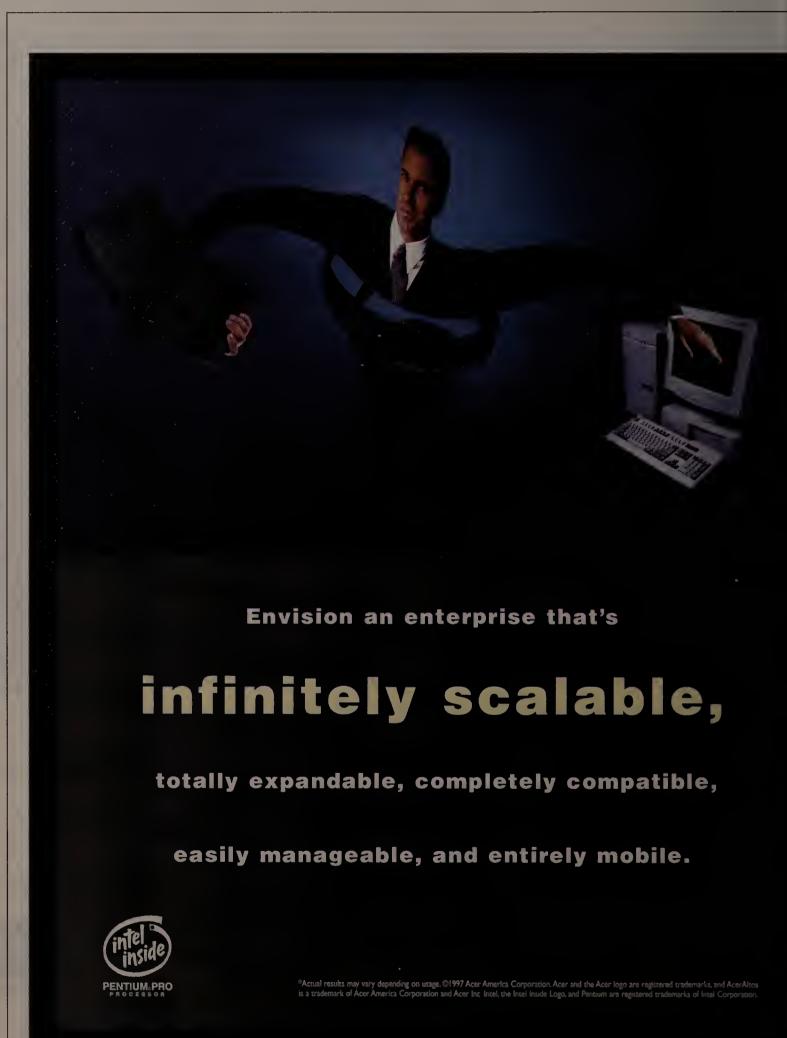
"As typical IBM middleware, it pro-

vides a lot of function, but maybe more function than anyone would need," she said. "They had 250 developers working on this thing, so it's probably going to be somewhat cumbersome."

Katz, whom IBM has briefed on Component Broker several times but who hasn't used it yet, said he is eager to see how easy the product will be to use. "How complicated will it be to develop

with?" he asked. "Will we get it on other platforms like Solaris? Will it meet these wonderful promises?"

But Katz hasn't been able to wait for IBM's middleware. He built the necessary connections using CORBA and Java to access his disparate back-end information. "We couldn't wait, but we're not married to any technology," he said. "If it works, great. We will go with the great technology." \square



Sapphire gives data access

CONTINUED FROM PAGE 69

lesser products, paying off in the long run. In my case, my peculiar Windows 95 configuration was the likely culprit, but installation shouldn't have been such a big problem in any case. After I resolved the installation issues, Sapphire/ Web performed marvelously.

The product is a well-designed graphical user interface-based rapid application development tool with native hooks to all major database products and access to other database products through Open

Database Connectivity (ODBC). It lets designers create Web pages that can access client- or server-based databases through an impressively complete and virtually transparent multitier approach.

Splitting a database-centric application into low-overhead server and client portions is the first part of a relatively seamless operation. First, the Web page designer builds the Web pages using traditional tools, designing Web pages

for readability, transportability among browsers, resolutions and so forth. Then the pages are tied through their anchor points to the next page through a "bind," Bluestone's moniker for the interface among a page's entries for database queries, the actual query and mapping the output to the target page.

The application creates the target page dynamically based upon the output of the query, which is filtered through templates that structure the data for presentation as the fully populated page is created.

FAST DEVELOPMENT

Optionally, the output can be fed through additional bindings and/or callback routines for further transformation and filtering. Those callbacks can use languages such as C, C++ and Java.

For testing purposes, I created a simple application: in essence a databasedriven cash register, keeping current and running inventories on the server (a Microsoft Personal Web Server was used in this case), with full data-entry and database verification. Running multiple instances of the client proved that running Sapphire/Web in a real-world, real-time environment is not just doable but also relatively easy to accomplish. It took me about two days to learn the basics of Sapphire/Web, then only about a day and a half to write the application. The easy interface Sapphire/Web provided both to my database and some homegrown data verification and formatting routines made that possible.

Data entry verification and validation are easily accomplished on the client side using canned interfaces to JavaScript, VBScript or ActiveX procedures and routines that are included. It's pretty painless to provide database access through Bluestone's efficient application development interface.

Security and secure access to corporate databases comes by a variety of means, starting with traditional log-in/password challenges that stem from your database management system and server operating system. More secure third-party Web commerce access-control and encryption packages are also included in Sapphire/

Sapphire/Web offers direct connections to major databases and has ODBC, Java Database Connectivity (JDBC), ActiveX Data Objects, Data Access Objects and Remote Data Object connectivity interfaces, although I only quickly tested the ODBC and JDBC interfaces.

Keeping the testing/development environment only a few keystrokes away from full enterprise deployment allows for hot updating of the appearance and interaction of the Web pages. Sapphire/Web runs on just about any Web server, according to Bluestone, and the development package runs on many popular platforms.

Sapphire/Web is a powerful system and, with no runtime license, a good buy \square

Greenberg is a freelance writer in New Kingston, N.Y.

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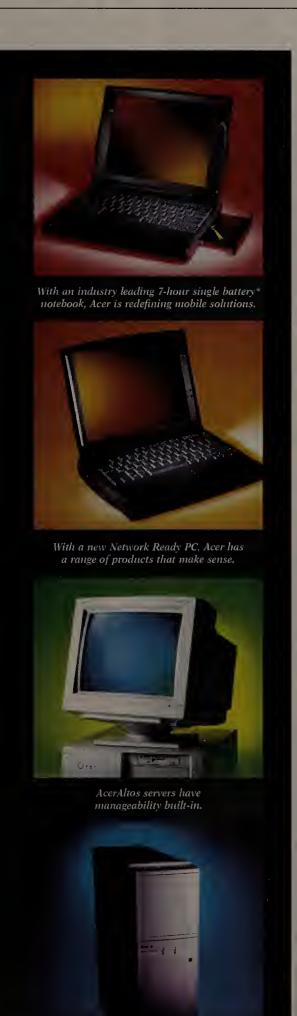
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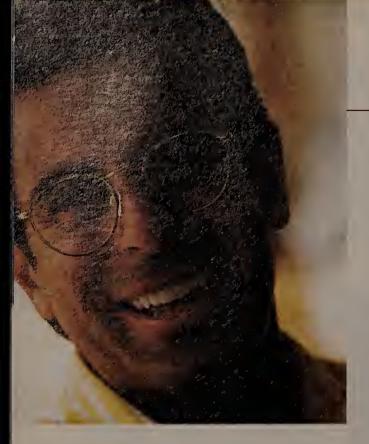
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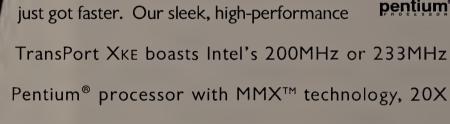




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Cray Research, Inc. in Eagan, Minn. — a subsidiary of Silicon Graphics, Inc. — has boosted the memory of its T90 supercomputers. Cray doubled the central system memory with speeds up to 515G byte/sec. A solid-state, secondary storage system for I/O buffering, called SSD-T90, also will be available. It will provide faster speeds than traditional disk subsystems. Pricing for the T90 ranges from \$2.5 million to \$40 million.

Data mover

Bus-Tech, Inc. in Burlington, Mass., has announced Data-Blaster 2, its mainframe-toclient/server data movement system. The rack-mountable device emulates a tape drive to achieve high-speed movement of data between mainframes and Unix or Windows NT servers. The new version supports four SCSI server connections and two mainframe connections in one box. Pricing ranges from \$12,000 to \$35,000.

NEC expands Versa line

NEC Technologies, Inc. in Mountain View, Calif., has rolled out the Versa 2780MT, the latest addition to its Versa 2700 series. The notebook has a 233-MHz Pentium processor with MMX technology; 512K bytes of Level 2 cache; a hard drive that can be scaled up to 4G bytes; a 12.1-in. active-matrix color display; a 20-speed maximum CD-ROM drive; and a 56K bit/sec. modem. Pricing for the Versa 2780MT notebook starts at \$3,299.

IBM port replicator

IBM is offering an enhanced port replicator that features wo PC CardBus slots and is compatible with IBM's ThinkPad 380, 385 and 560X notebooks. The replicator also has a Universal Serial Bus port so users can attach keyboards, mice and monitors to a single connector. The replicator is available now and costs \$299.

Briefs Road-warrior chic: PDA, pager, modem

By Kim Girard

LIKE MANY business travelers. analyst Andrew Seybold becomes a power user on the road. He totes an alphanumeric pager, a wireless electronic-mail device, Motorola, Inc.'s 3.1ounce StarTac telephone and a Compaq Computer PORTABLE Corp. Armada note-

Part of Seybold's job as editor of the Boulder Creek, Calif.-based newsletter "Andrew Seybold's Outlook" is rummaging through hundreds of handheld devices and notebooks and picking the best.

But for many users, picking and choosing the latest and

greatest from a drawer-full of gadgets and a passel of new laptops is part of the fun, whether they are status-seeking salespeople or function-demanding systems analysts.

So what's hot?

To start with, two-way pagers, wireless modems, personal digi-

tal assistants (PDA), Windows CE handheld GADGETS PCs and mininotebooks.

> At the top of that pack for many hip road warriors is U.S. Robotics' \$400 PalmPilot Professional, a pocket-size PDA used for taking quick notes and managing telephone numbers and appointments.

PalmPilot, a familiar sight in



Coors Brewing Co.'s Nick Sherwood and Bellverie Ross: More Coors employees are using Compaq CE handheld computers

airports everywhere, has drawn a cult of amateur and professional programming enthusi-

Sales of so-called smart hand-

held devices such as PalmPilot — as well as Windows CE palmtops, Apple Computer, Newton MessagePad Road-warrior chic, page 78

As the digital video discs turn

▶ Users eager for DVD standard to emerge

By Nancy Dillon

BILL WILLIAMS, MIS director at Styline Industries, said the format tug-of-war in the rewritable digital video disc (DVD) market will keep him from making a DVD storage investment in 1998. "We plan to let the dust settle and see who comes out on top," he said.

Styline, a national manufacturer of office furniture, uses recordable CDs for catalogs and sales presentations for its dispersed sales force. "Our entire catalog with four product lines is almost 2G bytes, so we can't fit it all on one 650M-byte CD," he said. "DVDs can store a lot more, so we're interested. But it's been really confusing."

Williams said he is also concerned about replacing his sales force's CD-ROM drives with DVD-ROM drives. Today's DVD-ROM drives can't read rewritable DVDs. Drives that have this ability are expected early next year.

HOT MARKET

The major DVD manufacturers will try to dispel confusion about rewritable DVD technology at Comdex/Fall '97 this week in Las Vegas.

They have a lot at stake. International Data Corp. in

Framingham, Mass., has predicted that the rewritable DVD market will reach \$1.3 billion in 2001. And analysts say DVD has a shot at becoming the standard technology for removable

Rewritable DVD manufacturers generally fall into two format camps: DVD-RAM and DVD-RW.

DVD-RAM discs can hold 2.6G bytes on one-sided discs and 5.2G bytes on double-sided discs. Supporters of the DVD-

> RAM format include Hitachi America Ltd. in Brisbane, Calif.; Toshiba America Information Systems, Inc. in Irvine, Calif.; and Secaucus, N.J.-based Panasonic Communications & Systems Co.

DVD-RW discs can hold 3G bytes per side. Manufacturers in this camp include Hewlett-Packard Co. in Palo Alto, Calif.; Philips Electronics N.V. in the Netherlands; and the San Jose, Calif.-based

DVD, page 81

NT SERVER

Newspaper flips switch

By April Jacobs

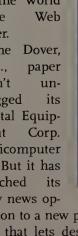
FOSTER'S DAILY DEMOCRAT is swapping its PDP-11/84-based publishing system for one that runs on Windows NT Server.

And the newspaper is finding that it can get news on the street and on the World Wide faster.

The Dover, N.H., hasn't plugged its Digital Equipment Corp. minicomputer yet. But it has switched its daily news op-

eration to a new publishing system that lets designers create page layouts electronically.

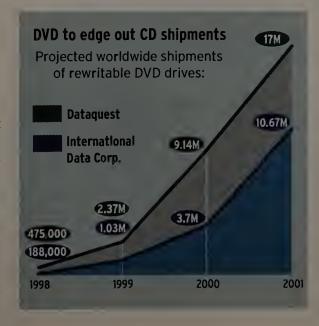
Newspaper, page 80



have been next to impossible to process the files that go online daily." - Phil Kincaid, webmaster

With the old sys-

tem, "it would



Road-warrior chic includes PDAs, pagers, modems

CONTINUED FROM PAGE 77

2000 and other devices — are expected to jump about 77% this year to 5.5 million units, according to International Data Corp. in Framingham, Mass.

Despite their heftier price tags —

\$500 to \$700 for a handheld that runs a "lite" version of Windows 95 - Windows CE devices are also making their way into corporations.

Hewlett-Packard Co. last week rolled

out the 36oLX. It has 8M bytes of memory, 10M bytes of ROM and costs \$699.

Other vendors include Philips Electronics N.V. and Casio Corp.

Nick Sherwood, information technology business analyst at Coors Brewing Co.

in Golden, Colo., said company employees use Compaq's CE 1.0 handheld for scheduling, electronic mail, word processing and spreadsheets. So far, the company has 20 of the devices.

"I see people moving more and more to them," said Sherwood, who carries a handheld, cellular phone, beeper and alphanumeric pager when out of the office. "They don't want to drag a Day-Timer around."

Sherwood said he is also interested in Toshiba America Information Systems, Inc.'s Libretto, a 2.5-pound mininotebook that was just upgraded with a 120-MHz processor and two-hour battery.

Oswaldo Guzzman, a systems analyst at JC Penney Co., is waiting for the new Libretto 70 CT.

"I like it for its 2.5-pound portability

Franklin Electronic Publisher's Rex - a 1.4-ounce credit-cardsize personal digital assistant -"is beautiful because it's so small and it contains all this information."

- Wayne Gushard, Sloan & Co.

and full Windows 95 [capabilities] and Microsoft Office," he said.

Burlington, N.J.-based Franklin Electronic Publisher's Rex, a 1.4-ounce, credit-card-size PDA, is flying off shelves.

It uses synchronization software to store phone numbers, names and a calendar downloaded from a user's com-

The only drawback is that you can't enter information manually.

"I think it's pretty clever," said Wayne Gushard, a systems manager at Sloan & Co., a building company in West Cald-

"It's especially good for our president, who uses Lotus Organizer and travels a lot. The Rex is beautiful because it's so small and it contains all this information," Gushard said.

Other hot stuff for the road warrior includes the following:

- ■New 8-pound meganotebooks such as the IBM ThinkPad 770, which features a 233-MHz Pentium processor, a 14.1-i color display and an optional DVD-ROM
- A new crop of Windows CE 2.0 devices. Users should expect the 2pound devices to cost about \$1,000 and boast full-color 10.4-in. screens, flash memory, built-in modems and battery life of 10 to 25 hours, according to analysts. The machines will be based on RISC chips that will run at 200 MHz.□



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Newspaper flips the switch on Digital system

CONTINUED FROM PAGE 77

Previously, staffers had to output strips of text and paste them onto dummy pages, which were transferred to the printing presses.

The new system required that Foster's buy new desktops and servers.

But in return, the switch has simplified the production process and reduced support issues, said Bob Sullivan, manager of information systems at Foster's.

Sullivan said he and his team of three support staff can troubleshoot seven Microsoft Corp. Windows NT Servers and about 45 desktops running Windows NT Workstation.

By contrast, the Digital PDP 11/84 system sometimes required a service technician to come on-site to fix a problem.

Sullivan supports about 150 users, some of whom are still working on the PDP-11/84-based system until the transition to NT Servers is complete, he said.

ALMOST THERE

The project, which took about six months from start to implementation for the news department, will likely take another several months.

With the new system, Foster's IS staff can troubleshoot seven new Windows NT Servers and about 45 desktops that run Windows NT **Workstation. The Digital system** often required repairs from an outside service technician.

Foster's is still searching for software that can handle the ordering and placement of classified advertising and meets the company's requirements.

Technology wasn't the only hurdle; editorial staffers accustomed to certain text interfaces had to learn a whole new one.

Sullivan said he and other support staffers conducted training sessions for each group of editorial people - writers, copy editors and editors — to make sure that each understood how the new desktop systems worked.

The old system was left up and running in case any glitches occurred to ensure that the day's paper went to print on time, he said.

The new system uses layout software from Quark, Inc. in Denver to create pages electronically. News stories are created in Microsoft Corp.'s Word.

That allows them to be HTMLenabled, said Phil Kincaid, Foster's resident webmaster.

Under the old system, Web editors had to "jump through a thousand hoops to get the file formats to be correct," Kincaid said.

"Under [that] system, it would have been next to impossible to process the hundred or more files that go online daily," Kincaid said.

The paper produces three online edi-

tions daily.

The new system also helped Nov. 3 with local and regional election coverage,

The newspaper staff worked with a

local radio station to post election results for most of the paper's coverage area in southern New Hampshire by 9:30 that night — before any print editions were able to give readers results.□



Users waiting for DVD standard to emerge

CONTINUED FROM PAGE 77

division of Sony Corp.

The formats will record differently, so users planning to read rewritable discs in future DVD-ROM drives will have to check for compatibility.

The Hitachi and Panasonic products are due first — within the next two months. The U.S. announcement of Toshiba's entry will be at Comdex. Toshiba's drives will ship early next year.

Sony will give the first public demonstration of its DVD-RW drive at Comdex. HP and Philips also are expected to give demonstrations. DVD-RW drives are expected late next year.

"We don't expect a resolution between the two formats until 1999," said Mary Bourdon, an analyst at Dataquest in San Jose, Calif. "But the companies first to market may have an advantage if their drives work," she said.

"I would not predict DVD to be the chicken in every pot for business users," Bourdon said. "But once the street price goes under \$500, it will be an appealing storage device for PCs." Pricing for the already-announced DVD-RAM drives will start at about \$750.



International Data Corp. says the rewritable disc market - which includes drives such as the one above - will reach \$1.3 billion by 2001

Connie Cummings, president of Priority Payroll Services, Inc. in Fort Collins, Colo., uses a 5G-byte desktop tape drive to back up individual payrolls for more than 200 client companies. "You bet we are interested in DVD storage," Cummings said. "If DVD becomes a standard like CDs are today, I wouldn't have to carry my portable tape drive to client sites to give them their accounting information." The IRS also requires that Cummings keep payroll processing records for four years. "I'm interested in the durability and compact size of DVDs," she said.□

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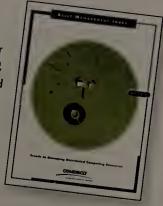
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INFOIMAGING TECHNOLOGIES, INC. has announced the 3D FaxPal Plus, a hardware device that sits on a telephone line and stores incoming faxes when the receiving PC is turned off. According to the Pleasanton, Calif., company, the fax peripheral operates as a personal fax server that can store up to 20 pages. It costs \$169.

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INTERLOGIC INDUSTRIES in Melville. N.Y., has announced the PMXVX, a 300-MHz Pentium motherboard with a maximum of 384M bytes of dynamic RAM.

According to the company, the single-board computer includes a Peripheral Component Interconnect bus, an integrated drive electronics hard-drive interface and a video chip with 2M bytes of memory.

It costs \$500 for a single board. **Interlogic Industries** (516) 420-8111 www.infoview.com

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Jeff Hogan, Internal Auditor The Good Guys!

"Some of the first financial payback we received from the Red Brick data warehouse was in the fraud area. In the first six months we were able to identify over a million dollars worth of fraud. Looking to the future, our long term plans are that we want to put everything on Red Brick."

Brian Kilcourse, Vice President & CIO Longs Drug Stores

"Right now there is no credible competition for Red Brick in the data warehouse space. As a result of the things we've learned from our data warehouse, we've been able to reduce the cost of goods by about a point and a half, and that's important to a retailer. Our net after taxes is around two percent, so being able to work with a point and a half on cost of goods sold is really a big number."





Linda McKay, Director, Systems Development, MIS Duty Free Shops

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FINDING FAULT

Why data warehouses fail to improve corporate profits:

- Flawed design or implementation of warehousing technology
- Built without adequate understanding of business issues
- Failure to directly link the warehouse environment to business applications

Source: Hurwitz Group, Inc., Framingham, Mass.

Warehouse monitor

Teleran Technologies LP in Roseland, N.J., has released ava-based data warehouse management software that can be used to analyze database, end-user and query activities for signs of impending performance problems.

The Teleran System software includes artificial intelligence technology that anayzes usage patterns and can cut off resource-hogging queries before they bog down company officials said. It runs on Unix and Windows NT rvers. Prices start at

pois unurade

normatica Corp. and Dak, nc. both announced data r housing tools.

formatica in Menlo Park, Mf., promised new software centr lly managing netks of data marts. The 225,000 PowerCenter prodct is due to ship early next r along with an upgrade of nformatica's PowerMart deopment tool, company of-خالع said.

ed an upgrade of its Tary data extraction softwith added database support and new systems ment features. Tapestry 2.0 costs \$75,000 and up d Lo is due to ship early −xt y ⊥r.

efs Consolidation wave breaks right for users

of

on Red Brick Sys-

tems, Inc.'s deci-

sion-support data-

base. The ware-

By Craig Stedman

MORE AND MORE data warehousing vendors are exchanging vows at the mergers and acquisitions altar. And users who have had to shoulder the burden of stitching together different warehousing tools are only too happy to throw some rice.

Data warehousing vendors are teaming up to cover more

bases than they could on their own. More than a half-dozen deals have been consummated since July on both the development and front-end analysis sides of the warehousing process (see chart, page 86).

make data warehouse construction less of an ordeal if vendors follow through on their promises to create ready-to-use bundles of packaged software, said several information systems managers who have slogged through warehousing projects.

"Building a data warehouse today is kind of like building your own Swiss watch," said ministrator at 9West Group, Inc. in White Plains, N.Y. gether in a powerful way."

"A lot of small com-

get scooped up."

Carleton

The couplings should help

Gene Alvarez, warehousing ad-"When you look at all the software products you need, it's hard getting all that to work to-

an international wholesaler and retailer women's shoes, panies are going to spent about 18 months developing a pilot data warehouse based

- Paul Fluckiger,

house, at 27G bytes and growing, went into use late last year and will eventually store wholesale merchandising information on all of the company's 13 shoe

Alvarez said he started with a list of 65 warehousing vendors sorted into various tool categories. At the back end, 9West eventually decided that writing custom Cobol programs would be easier and less costly than piecing together a mix of data extraction, transformation and cleansing tools, he said.

The custom-code route continues to be popular among users. A recent survey of 2,100 data warehousing sites by Meta Group, Inc., a consulting firm in Stamford, Conn., showed Consolidation, page 86

ABAP programs were written to extract data from SAP R/3 into the data warehouse - MARK CIEKUTIS ALLEGIANCE HEALTHCARE

COMMENTARY

Elusive productivity

SHAKU ATRE

■ VEN 1F computers replaced all office workers, some critics would still tell us they hadn't boosted white-collar productivity. Like the paperless office, white-collar productivity never arrives, and nobody can explain

where it goes. Yet we're told that computers have increased productivity on the shop floor and in factories. And for more than 40 years, mainframe applica-

tions for billing, accounting and financial systems have turned office work into efficient, profitable, factory-like operations. But not all white-collar workers perform routine tasks that can be evaluated by efficiency experts armed with a stopwatch

and clipboard. Some make decisions or support others who do. How do you measure their productivity? By how many decisions they make or support or by how fast they do it?

Those are the people who

use data warehousing. If you can't measure their productivity, it's hard to claim that data warehousing will improve it. And that can make data warehousing a tough sell. Senior

management may demand guaranteed productivity boosts — that is, a return on investment (ROI). But a data warehouse aims at qualitative improvements that ultimately will impact the bottom line but can

Atre, page 86

Health-care project results in timely financial reports

By Linda Wilson

IN THE OLD world at Allegiance Healthcare Corp., harried managers, embroiled in competitive battles in a cost-conscious marketplace, were stuck with limited and inflexible financial information available in paper-based, end-of-month reports.

DECISION In the new world, with sophisticated software and a data warehouse, flexible information is updated daily and is available electronically

Getting there wasn't easy. The company, in Waukegan, Ill., first replaced outdated mainframe operations systems with the notoriously complex SAP

with a few clicks of a mouse.

R/3, a client/server-based suite of business applications from SAP AG in Walldorf, Germany. Then it built a separate decision-support warehouse and integrated it with R/3.

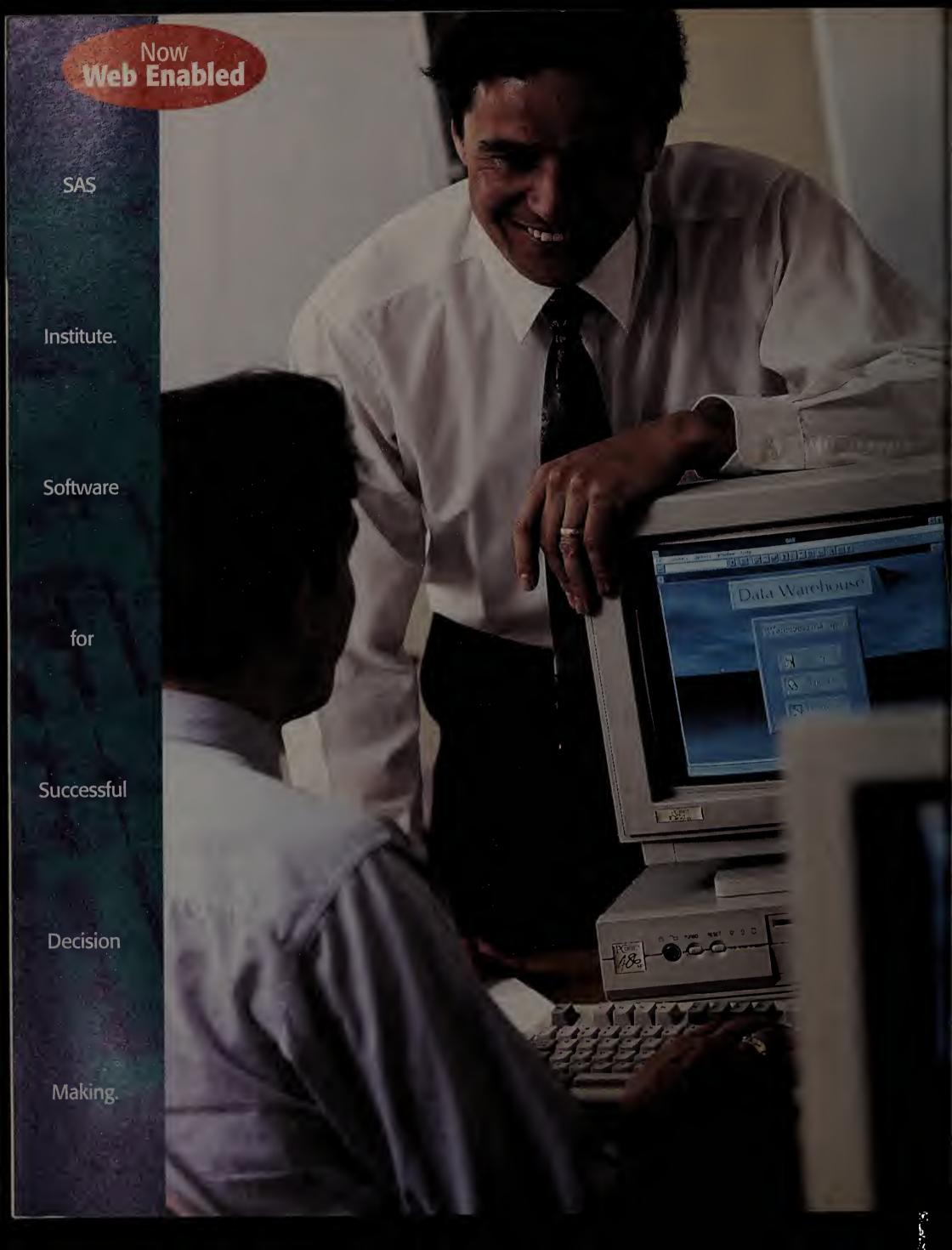
The payoff? The ability to keep close tabs on sales, returns and other key performance indi-

cators, which is an important way to control costs and thus in-

crease earnings.

"It starts from payer and insurance companies, who want to reduce the cost of health care, resulting in pricing pressures on hospitals, who cut their supply budgets," explained Bert Bierschenk, health care

Project, page 86



The Top New Data Warehousing Software When 200,000 IS managers were asked to

<u>DATAMATION</u>

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Consolidation hits warehouse vendors

CONTINUED FROM PAGE 83

that 55% are still writing their own programs to handle at least some pieces of the back-end data preparation process.

The persistence of the do-ityourself approach makes things hard for some warehousing tool vendors, said John Ladley, a Meta Group analyst. "The No. 1 competitor for all of the packaged products is Cobol, and business just isn't growing fast enough for all of the companies," he said.

Another factor pushing vendors into one another's arms is the spread of data warehousing to a wider base of corporate users who view its business analysis and decision-support capabilities as crucial competitive weapons, said Wayne Eckerson, an analyst at Patricia Seybold Group in Boston.

BIG IS BEAUTIFUL

"As the market gets bigger, the customers are getting more conservative," Eckerson said. "Mainstream companies don't want to buy tools from small vendors and then have to integrate them. There's a shakeout going down because [vendors] realize you need deep pockets

The need to bulk up financially was cited in several recent deals, such as Minneapolisbased Apertus Technologies, Inc.'s acquisition of Carleton Corp. in Billerica, Mass.

Carleton initially tried to expand beyond its mainframe and AS/400 data extraction roots by signing deals to integrate and resell other tools with its software. But the company quickly learned it needed to get bigger fast, said Paul Fluckiger, Carleton's president.

"The strategy we had was pretty ambitious, but the market is moving too quickly," he said. "A lot of small companies are going to get scooped up."

Ladley said all the deal making could cause short-term confusion for users while merging vendors sort out their organizational differences. And the promised integration of products won't happen overnight, he added. For example, it is expected to take Apertus and Carleton up to 18 months to give their tools a common user interface and meta data layer.

Jack Nealon, data warehouse manager at the U.S. Department of Agriculture's (USDA) national statistics service in Washington, can attest to the difficulties vendors sometimes have swallowing acquisitions.

When Nealon began evaluat-

BUYING TIME

Recent acquisitions in the data warehousing market include:

Prism Solutions buys data quality software vendor **QDB Solutions**

Red Brick buys warehouse development and analysis tools from Engage Technologies

Actuate Software acquires NetScheme Solutions, a maker of Internet-based reporting software

Cognos signs a deal to buy Interweave Software, a maker of query tools for Web users

VMark Software, a maker of data warehouse development tools, signs a deal to merge with database vendor Unidata

Query tool vendor Andyne Computing agrees to be acquired by Hummingbird Communications

Apertus Technologies purchases Carleton, combining two makers of data warehouse development tools

ing warehousing technology, he had trouble getting answers to technical questions from one vendor that had just bought a specialized decision-support database. "It looked like we were dealing with a company where no one knew anything about the product," he said.

But the promise of vertical integration sounds good, Nealon said. For example, Red Brick's recent purchase of data warehouse generation technology may simplify the USDA's warehouse expansion, he added.

Ray Pyle, chief information officer at the Blue Cross/Blue Shield Association's federal government health plan in Washington, agreed that the consolidation trend should help users.

"I've thought this was necessary for a long time," Pyle said. "People are really looking for complete packages, not just a piece of technology that needs to be integrated with other products."

Pyle's unit, which handles \$7 billion worth of health insurance premiums per year, wrote its own Cobol code to extract, cleanse and load data for warehousing. The warehouse holds about 30G bytes now and is scheduled to grow to nearly 2T bytes by late next year. □

CONTINUED FROM PAGE 83

be difficult to predict. You need business justification that goes beyond ROI.

That justification could be regaining control. Computers have enabled companies to grow larger than ever before. But the resulting monoliths are often virtually unmanageable. And even smaller companies have become ensnared in complexity and bureaucracy.

Data warehousing is about strengthening control by improving the quality of decision support. It extracts actionable information from reorganized versions of the operational data a company already collects, perhaps augmenting it with external data sources that help illuminate the internal data. Data warehousing is often a diagnostic tool for spotting trends and reading between the lines.

Here's how to justify it:

Start at the beginning. Identify your firm's corporate goals and objectives, then formulate the business analysis issues that will promote those goals.

Next, define the information requirements for each business issue and identify subject areas. Give the results to line managers, showing them the kind of business intelligence questions the warehouse can answer.

Get input and refine your plan. Define deliverables where possible. For example, explain that a warehouse would allow you to create a unified client profile detailing all the products a client has purchased and the client's spending record over time. Then you would be able to identify clients' buying patterns, find cross-selling opportunities, figure out which customers are most profitable and identify purchasing trends. Using third-party market and econometric data, you'd be able to design an array of "micromarketing" strategies.

That approach will engage the imagination of your executives. They know the business and won't need phony "guesstimates" to realize the potential value of a client profile to their management goals. If you try to justify the project on the basis of estimated ROI, you easily wind up back in the search for white-collar productivity. Which nobody has ever found.□

Atre is president of Atre Associates, Inc., a consulting firm in Port Chester, N.Y. She can be reached at shaku@atre.com.

Project leads to timely reports

CONTINUED FROM PAGE 83

group vice president at Duff & Phelps Credit Rating Co. in Chicago. Cost and payback figures weren't available from Al-

Allegiance, spun off by Baxter International, Inc. last year, operates three health care busi-: supply distribution, surgical- and respiratory-therapy supply manufacturing, and materials-management consulting.

Allegiance purchased the financial, sales, distribution and production-planning modules of R/3 as part of a corporate reengineering effort begun in 1994. It opted for a separate decision-support warehouse because it concluded that R/3's database design was best suited to operations and not reporting functions. Operational databases are generally structured to support quick data entry, whereas decision-support databases are structured to support quick data retrieval. "They are fundamentally different data models," said Mark Ciekutis, data warehouse manager at Allegiance.

The decision to build a separate warehouse didn't come without costs. A crucial and very difficult part of the project involved devising a way to transfer data nightly from R/3 to the

That was because of R/3's complexity and use of a proprietary programming language, ABAP. The application programming interfaces in the 3.0D version haven't made the task easier because they are geared toward transaction environinents and not decisionsupport warehouses.

"There are thousands of tables that are tightly integrated. To get the data out of SAP R/3 and move it to the warehouse, we had to figure out what tables get updated and why they get updated" when new information is entered, Ciekutis said.

Allegiance also evaluated ETI-Extract from Evolutionary Technologies International, Inc. (ETI) because Allegiance had already purchased the conversion tool to link R/3 to operations systems on older platforms. "We found that the tools, which are supposed to help with the extraction process, were hard to get to know," Ciekutis said.

So the group decided to write its own programs in ABAP. It took about four months to write and test them. The warehouse resides on a Digital Equipment Corp. Alpha 8400 server that runs Oracle Corp.'s Oracle 7.3 relational database management system. Users access data from the warehouse using Business-

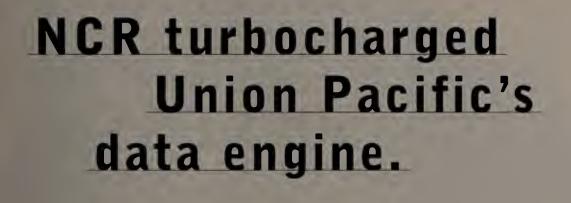
Objects from Business Objects, Inc. in San Jose, Calif.

Allegiance began the warehouse project in October 1996 and brought up all financial tables and 500 users this year. The distribution and production-planning tables and 60 distribution centers will be added by the end of next year, bringing the total number of warehouse users to 3,000.

The warehouse has already allowed the finance staff to restructure the report process, said Mary Pat Raleigh, financial integration manager. Using BusinessObjects, the staff built tempiate-type standard reports that users can customize. The template for profit/loss, for example, lets a user look at monthly, quarterly or annual figures.

"With good reports, you know where your business is heading," Raleigh said.□

Wilson is a freelance writer in Glen Ellyn, Ill.



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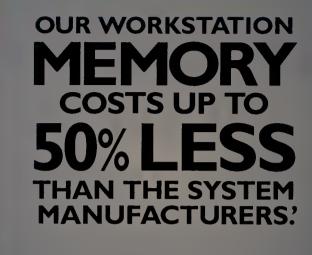
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Transactions in the Age of the Consumer

L. Merill Bryan, Jr.,
Senior Vice President,
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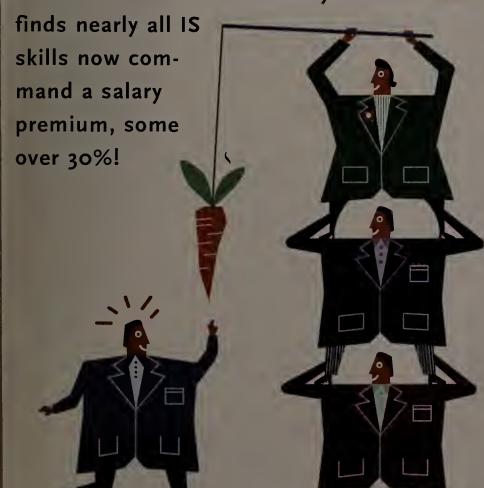
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Annual Skills Survey

PAN HENOSE

By Miryam Williamson

Name your skill, and you're gonna pay — DEARLY — to either get it or keep it on staff.
Our third annual skills survey



im Gurbick has the kinds of skills that make recruiters salivate. But when they call him, Gurbick tells them he's not interested in moving on.

Gurbick brought knowledge of several Unix dialects, TCP/IP and Ethernet networking when he signed on as network engineer at Teachers Credit Union in South

Bend, Ind., just over a year ago. He's since learned frame relay, Integrated Services Digital Network and Fast Ethernet.

"Given my Unix background and my new skills, I wouldn't have much difficulty finding another job," Gurbick says. "But one cannot overestimate the value of inertia. I'm happy, well-treated and 39%

Salary premium paid for SAP consultants.

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well-paid where I am." He's clear about that with recruiters who call him and listens only to opportunities within 150 miles of South Bend.

With the attributes Gurbick boasts, it's no wonder he's being heavily courted. After all, networking topped the charts in *Computerworld*'s 1997 skills survey, in which 542 mid- and senior-level information systems managers reported on skills they are planning to hire and train for in the coming year and on salary premiums currently paid to staff and contract workers with specific expertise. (Salary premiums are the amount of additional compensation paid to an employee for hav-

Paying through the nose, page 90

THROUGH THE NOSE

CONTINUED FROM PAGE 89

ing a specific skill vs. someone in a similar position without the skill.)

LAN skills are hot, but even more in demand are people proficient in designing and managing wide-area networks, says Neal Fisher, president of PPS Information Systems Staffing, a Baltimore recruiting firm. Fisher ascribes this to the continuing trend toward corporate mergers.

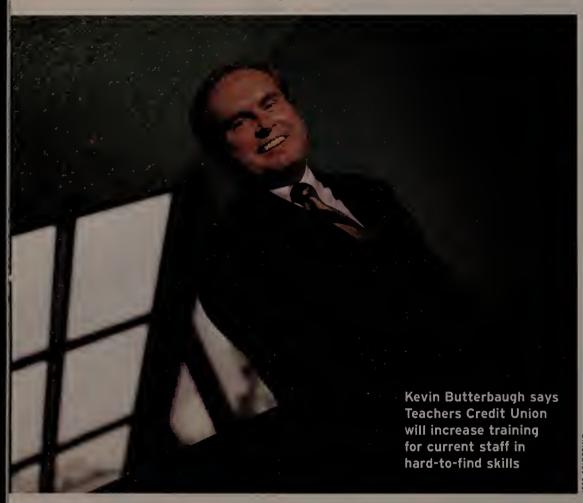
"With all these takeovers, you know how important it is to be linking these isn't certified. "By hiring someone with exposure to NT but no certificate, I'll save considerably," he says.

People with Internet skills can find jobs anywhere, it seems. Fisher notes a steady increase in calls from employers seeking experienced webmasters fluent in Hypertext Markup Language, World Wide Web development languages and authoring tools, particularly FrontPage. Internet developers who know Java may find themselves especially welcome in Kentucky, Tennessee, Alabama and Mississippi, according to survey results.

COBOL COMPETENCY

Language competencies most often sought are C++ and — not surprisingly — Cobol.

"People with legacy Cobol skills have



major corporations," Fisher says. Hiring managers seem especially interested in folks who know TCP/IP and Windows NT — client, server or both.

IS contractors with SAP implementation experience can attract salary premiums averaging 40%, and PeopleSoft, Inc. skills draw an average of 33.6% above ordinary hourly rates. Baan experience can mean 25% higher paychecks, and Oracle Corp. skills, both on the application and database sides, command a not-too-shabby 23% premium. Permanent staff members trade stability for premium pay, attracting somewhat smaller salary premium bonuses.

SEALED AND CERTIFIED

Michael Lamore, PC help supervisor at ADP Dealer Services' Portland, Ore., facility, expects to pay a premium for a Microsoft Certified Engineer. "Certification will give me the assurance that the person is fluent in Windows NT," he explains.

Lamore says he is also looking for a help desk technician who knows NT but experienced a bit of a rebirth because of the year 2000 problem," says Greg Scileppi, executive director at RHI Consulting in Menlo Park, Calif., a subsidiary of recruiting firm Robert Half International, Inc.

Contract Cobol programmers can look for pay premiums averaging nearly 27%. Not bad for a skill many were calling dead only a year or two ago. But for some, pay gratification may be delayed. Michael T. McCarty, senior director at Johns Hopkins Health Systems in Baltimore, says he is considering a bonus for year 2000 technicians, part to be paid at the end of 1999 and the rest a few months into the following year.

"If we artificially inflate salaries now, what happens in 2001?" McCarty asks.

The combination of Microsoft Visual Basic and Visual C++ skills is particularly compelling to software development managers. Programmers fluent in C may want to catch the next plane to one of the Mountain states, where two-thirds of survey respondents are looking for them

The "Most Wanted" skills

The top technology skills, according to the percentage of companies expecting to train for them and hire for them next year:

RANK	INTERNET SKILLS:	% COMPANIES WITH SKILL NOW	% COMPANIES TRAINING FOR SKILL NEXT YEAR	% COMPANIES HIRING FOR SKILL NEXT YEAR
1.	HTML	43%	26%	15%
2.	Java	18%	24%	13%
3.	Web server administration	32%	25%	12%
4.	Internet development tools	28%	22%	12%
5.	Electronic commmerce	12%	8%	8%

RANK	LANGUAGES:			
1.	C++	28%	16%	17%
2.	Cobol	40%	4%	17%
3.	С	24%	6%	11%
4.	Micro Focus Cobol	9%	3%	5%
5.	Smalltalk	3%	2%	3%

RANK	DEVELOPMENT TOOLS:			
1.	Microsoft Visual Basic	34%	25%	12%
2.	Visual C++	18%	14%	10%
3.	PowerBuilder	11%	8%	8%
4.	Oracle Developer/2000	9%	9%	6%
5.	Visual J++	5%	9%	6%

RANK	NETWORKING:	*IBM's Advanced Pro	ogram-to-Program Con	nmunicati o ns
1.	TCP/IP	70%	30%	22%
2.	IPX	32%	7%	5%
3.	Wan-Wise	9%	7%	5%
4.	SNA	22%	3%	4%
5.	APPC*	11%	2%	3%

RANK DBMS	ND RDBMS:			
1. Oracl	e	22%	19%	18%
2. DB2		18%	6%	12%
3. Micro	soft SQL Server	23%	22%	11%
4. Syba	se SQL Server	10%	7%	3%
5. Object	t databases	6%	4%	3%

RANK	OPERATING SYSTEMS:			
1.	Windows NT	64%	48%	20%
° 2.	Windows 95	83%	29%	17%
3.	Unix	35%	11%	11%
4.	AIX	15%	5%	6%
5.	Windows 3.x	74%	4%	6%

RANK	INTERNETWORKING:			
1.	Ethernet switching	30%	10%	5%
2.	ATM	7%	4%	5%
3.	Routing	30%	13%	4%
4.	10Base-T switching	32%	10%	4%
5.	Gigablt Ethernet	5%	5%	3%

(Note: All percentages have been rounded off to the nearest whole number.)

Where hiring is concerned, no geographical dead spots show up on the skills survey, but activity is highest in New York, New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Michigan and Wisconsin. Similarly, no industry leads in hiring demand, but metal, plastic and rubber manufacturing leads that industry segment, and government registers highest in the nonmanufacturing area.

Fisher says he gets the most requests from the insurance and investment industries. While the entire U.S. is doing well in terms of job opportunities, Atlanta and Houston are particularly active in hiring at the moment, he says.

TRAIN WHO YOU HAVE

Although 36.2% of respondents reported increased hiring plans, 51.3% intend to improve the skill levels of existing staff. Kevin Butterbaugh, vice president of Teachers Credit Union, plans to spend between \$50,000 and \$75,000 on training. "We want to be self-reliant in supporting the systems we have and not depend on third-party contractors," he says.

Butterbaugh says he also sees an in-Paying through the nose, page 92

The right skills at the right time

Mindy Hall-Lane, systems administrator at ADP Dealer Services, found her way into her profession almost by acci-

Just out of high school in 1982, she started work in a hospital's materials management department. When a new manager came onboard and decided to automate the operation, Hall-Lane was picked to participate in choosing the hardware and developing the software package "because I was new and wasn't biased to any particular computer system or software," she says.

A subsequent job as a customer service representative brought her the opportunity to obtain Novell network certification.

At ADP Dealer Services, she learned Windows NT networking. Now, five months after joining ADP, she is coordinating the rollout of Microsoft's Systems Management Server. She is almost entirely self-taught.

"There's a lot of good information out there, self-training videos and books," Hall-Lane says.

Well-trained; well-paid; staying put

Heading a team of five, Stan Hill, LAN/WAN architect at Johns Hopkins Health Systems, takes care of the organization's Windows NT servers, including a 600-node network of public workstations that allow some 2,000 hospital workers to log on at any location.

Hill's group also handles software management and dis-

tribution. Hill says Hopkins hired him three years ago "because I knew what NT stood for and they were desperate."

Recruiters call him frequently, he says, but "here I can get all the training I want, and they pay me pretty well." It would take a hefty increase to get him to move. "Twice what I'm making might get my attention," he says. He thinks the

next hot technologies will be ActiveX, data warehousing, data mining and anything related to the World Wide Web.

His advice for someone just starting out: "Learn Visual C++ and Visual Basic and you won't have to worry where your next meal is coming from."

CONTINUED FROM PREVIOUS CHART

The "Most Wanted" skills

The top technology skills, according to the percentage of companies expecting to train for them and hire for them next year:

RANK	LAN ADMINISTRATION	% COMPANIES WITH SKILL NOW	% COMPANIES Training for Skill Next Year	% COMPANIES HIRING FOR SKILL NEXT YEAR
1.	Windows NT Server	47%	33%	15%
2.	Novell NetWare	50%	16%	11%
3.	Ethernet	50%	10%	5%
4.	НТТР	13%	5%	3%
5.	OS/2 LAN Server	9%	1%	3%

RANK	OFFICE/E-MAIL/GROUPWARE:			
1.	Microsoft Exchange	27%	26%	10%
2.	Lotus Notes	13%	8%	7%
3.	Novell GroupWise	14%	7%	4%
4.	CC:Mail	16%	3%	4%

RANK	CLIENT/SERVER APPLICATIONS:			
1.	Oracle	12%	8%	11%
2.	SAP	4%	3%	5%
3.	PeopleSoft	6%	5%	5%
4.	J. D. Edwards	5%	2%	5%
5.	Baan	2%	2%	2%

RANK	SYSTEM SOFTWARE & SUPPORT:			
1.	Year 2000 conversion	31%	16%	18%
2.	Help desk	36%	15%	13%
3.	Data warehousing/mlning	15%	13%	11%
4.	Network management	40%	19%	9%
5.	Project management	32%	13%	8%

(Note: All percentages have been rounded off to the nearest whole number.) Base: 542 IS managers

Finders, keepers

Stan Hill

Hiring managers say the following are the most effective methods of finding the IS talent and skills they need:

RANK	RECRUITING METHOD	% RESPONDING
1.	Newspaper/magazine ads	40%
2.	Placement/recruiting firms/headhunters	40%
3.	Internet ads	14%
4.	Referrals from peers/friends/industry contacts	13%
5.	Networking	9%
6.	School/college recruiting	7%
7.	Word of mouth	7%
8.	Referrals from current employees	7%
9.	Train in-house or promote from within	6%
10.	Contractors	6%

(Note: All percentages have been rounded off to the nearest whole number.) Base: 542 IS managers

Hiring is Hell

Hiring managers say the hardest skills to find in the past 12 months were:

RANK	TECHNOLOGY SKILL SET	% RESPONDING
1.	Oracle (database)	14%
2.	Cobol	10%
3.	Unix	9%
4.	Networking	9%
5.	Windows NT Server	8%
6.	Database/relational database skills	7%
7.	Windows NT	6%
8.	AS/400	6%
9.	Other specific networking skills	6%
10.	Other mainframe-/midrange-related skills	6%

(Note: All percentages have been rounded off to the nearest whole number.) Base: 542 IS managers

THROUGH THE NOSE

CONTINUED FROM PAGE 91

vestment in training as a way to keep employees from straying. He says it's one way to show technical professionals they are valued.

To retain skilled people, McCarty persuaded senior management to restructure pay scales, leaving behind the traditionally lower rates that hospitals pay and adopting rates that reflect the IS industry as a whole.

Whether a technical professional prefers to work with applications or networks, flexibility is key to success in today's job market, Fisher says.

MICROSOFT IS HOT

McCarty notes that although Windows NT gets all the attention, the really hot employees are those equipped to work with the newest technologies, and those he lists all come from Microsoft — Win-

Teachers Credit Union's
Tim Gurbick says being
treated well and paid
well keep him from
straying

dows NT, software management, Zero Administration Kit LANs, "anything that helps companies drive down the total cost of ownership."

Asked to name today's least valuable

skill, McCarty replies, "Novell knowledge. In our environment, the number of NT LANs is growing 10% to 15% a year, and the number of Novell LANs is being reduced by 5% or 10% a year."

Oracle experience is the top database product on his clients' shopping list, drawing salaries of \$50,000 to \$100,000, depending on experience, Fisher says.

But conventional software developers are apt to find pickings growing slimmer as packaged software crowds out proprietary applications.

One exception: Developers familiar with object orientation are starting at \$30,000; those with three or four years' experience are earning double that and more.

As outsourcing continues to grow, independent contractors are seeing pay offers from \$60 to \$200 per hour, Scileppi says. But the contractor role isn't for everyone.

"You've got to have the personality for it, to be able to meld into an organization and get up to speed quickly," Scileppi says. "The demands are higher, but the reward from a financial and career satisfaction standpoint is higher, too." []

Williamson is a freelance writer in Warwick, Mass.

BIG cash for consultants and contractors

The top skills for consultants and contractors, in terms of the additional "premium" paid for the skill above normal salary:

RANK	TECHNOLOGY SKILL SET	% SALARY PREMIUM Paid for skill
1.	SAP	39%
2.	Object databases	38%
3.	Lawson	37%
4.	PeopleSoft	34%
5.	Year 2000 project management	27%
6.	Baan	25%
7.	Java	25%
8.	Novell NetWare	24%
9.	Oracle (client/server application)	23%
10.	Oracle (database)	23%
11.	Web server administration	22%
12.	АТМ	21%
13.	Progress	21%
14.	J. D. Edwards	21%
15.	Borland Delphi	20%
16.	Gupta SQLBase	20%
17.	Windows NT Server	20%
18.	Ethernet	20%
19.	Oracle Developer 2000	20%
20.	dBase/Xbase	19%
21.	Sybase SQL Server	19%
22.	AIX	19%
23,	Wan-Wise	19%
24.	Microsoft SQL Server	18%
25,	Electronic commerce	18%

(Note: All percentages have been rounded off to the nearest whole number.) Base: 542 IS managers

Skills to BANK a career on

The top skills for permanent IS employees, in terms of the additional "premium" paid for the skill above normal salary:

RANK	TECHNOLOGY SKILL SET	% SALARY PREMIUM PAID FOR SKILL
1.	SAP	19%
2.	Lotus Notes	15%
3.	Baan	13%
4.	PeopleSoft	12%
5.	Progress	12%
6.	PowerBuilder	12%
7.	Smalltalk	11%
8.	Visual J++	11%
9.	Paradox	11%
10.	Netscape Server	11%
11.	ActiveX	10%
12.	Gupta SQLWindows	10%
13.	НТТР	9%
14.	AppleTalk	9%
15.	Novell GroupWise	9%
16.	Data warehousing/mining	9%
17.	Windows NT Server	9%
18.	Microsoft SQL Server	8%
19.	Oracle (database)	8%
20.	Apple MacIntosh	8%
21.	CGI	8%
22.	Systems management	8%
23.	Oracle Developer 2000	8%
24.	Borland Delphi	8%
25.	Novell NetWare	8%

(Note: All percentages have been rounded off to the nearest whole number.) Base: 542 IS managers

Time for a change Take the word "information" out of IT, Peter Keen argues. Page 104

"TCO reduction

... better vie

me overine!

- Prich Jaffe

as a catal

Managing

ONE MANAGER'S LOOK AT



By Brian D. Jaffe

Forget those total cost of ownership numbers, says an IS manager in the desktop trenches. A common-sense attitude, tempered with skepticism, is what it takes to cut desktop costs. Here are 25 ways to save some bucks.

I'm always eager to reduce the total cost of ownership of desktop computing.

As an information technology director responsible for PCs and LANs in a 1,000-user environment, it's an important issue for me. But watching everyone try to outdo one another with claims of lower total cost of ownership (TCO) is like watching politicians make campaign promises about tax cuts. Talk is cheap, but what about delivering the goods? All the TCO gurus seem to agree that an average shop can reduce total cost of ownership about 15% by implementing various best practices. So my editor asked me to look at some of the best practices being touted. I did, and I've got to tell you, while some seemed to have obvious benefits, others made me wonder if I was being sold the "trickle-down theory" of economics.

Here are the top eight best practices, and my rating (see box above right) on how much of an impact they can have on reducing TCO:

• Define and enforce hardware, software and configuration standards.

The fewer the number technology platforms in an environment, the easier support should be. Likewise for any hardware and software setups.

TCO, page 96

Ratings

- ★★★★ When you're getting serious about reducing TCO, start here.
- *** Very worthwhile way of reducing TCO.
- ** Will make more of a scratch than a dent.
- Well, it can't hurt.





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Vegas for
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the women
on the
exhibit
floors hurt
the cause
of female
IS managers

@ COMPUTERWORLD

Laura DiDio will host a forum this week on the issues presented in this column:

www.computerworld.com.

he more things change, the more they stay the same. And nowhere is that dichotomy more apparent than in comparing the women who will work the booths this week at Comdex/Fall '97 and the female IS managers who will attend the show. Talk about worlds colliding.

Female IS professionals have racked up impressive gains, breaking the glass ceiling and earning an average of 81 cents for every dollar their male IT counterparts make, according to Department of Labor statistics. And women are a common sight in IS departments; the Bureau of Labor Statistics estimates that women accounted for about 30% of the IS workforce last year.

But high tech isn't the only area in which the ranks of women are swelling: Scantily clad "booth bimbos," walking billboards for sexism, are also out in record numbers. Now, some may argue that that's only natural. This year's Comdex was expected to attract more than 2,100 exhibitors and about 160,000 attendees. The 33 modeling agencies in Las Vegas are booked solid. A random sampling of about six revealed that they were supplying from 20 to 120 women and men to work the booths and amble down the Comdex aisles in various states of dress and undress. Richard Weber, CEO of The Lenz Agency, which has been in business for 37 years, says models and showgirls who work Comdex can make \$200 to \$800 per day, not including tips. "And it's a fact that the more abbreviated the outfit, the bigger their tips are," Weber says.

But what type of impact does a blatant, in-your-face jiggle show have on professional women who have strived to erase the gender barriers in IS? Plenty, they say.

"The damage done by booth bimbos is immeasurable. They're on the edge of respectable," says Nora Miller, IS manager at the Northwestern Power Planning Council in Portland, Ore. "If professional IS women dressed like that, our male peers would think we were airheads. And if we dress too professionally, we're accused of trying to be like men."

Amy Bond, editor in chief and technology manager of the Women In Technology International World Wide Web site, agrees. "These women make it harder for the rest of us who are trying be taken seriously. I've seen them in ragged bikinis, leaving little to the imagination. I support everyone's right to make a living, and

I've been unemployed in my time, but never that desperate," Bond says.

All of the female IS managers I spoke with wondered the same thing:

What do their male counterparts think of these booth bimbos? Even Weber concedes that the freewheeling atmosphere of Vegas and Comdex "can turn normally conservative churchgoing family men" into crazy conventioneers who act like pubescent high school sophomores who do things they'd never dream of doing normally. At one Comdex show I attended, a minor league vendor got the bright idea of hiring booth bimbos outfitted in the skimpiest attire and adorned with twinkling lights to give attendees free shoeshines. Of course, the women had to bend over and kneel to do this. The drool factor was so high you'd never know Las Vegas was in the middle of the desert.

And how do the women who work the Comdex booths feel about their occupation?

"It's honest work. It beats waiting tables, and the tips are phenomenal," said one named Aimee.

"But it's incredibly sexist," I persisted.

"Yeah, so what? Las Vegas is the capital of 'T & A.' "
"Don't you feel like you're setting the cause of women back a couple of hundred years?" I countered.

"No way," Aimee said. "I also work as a showgirl, and if I'm such a bimbo, why are there so many professional women and housewives in the audience during a performance?"

Weber also distinguished between legitimate models and prostitutes who swarm Vegas during Comdex to work fourth-tier booths. "The vendors don't know these women are working for themselves. Once they solicit enough after-hours business, they don't show up anymore," Weber says. I tracked one of these women down and asked her if she didn't think her actions undermined women IS managers who attended the show. Tammi didn't see it that way. She says that despite the fact she can't tell the Internal Revenue Service how she earns her living, she's still got a lot in common with women IS managers. Tammi says she's a professional working woman, too. As if to underscore her liberation, Tammi said she's taken charge of her career. "I got rid of the pimp, didn't I?" \square

DiDio is Computerworld's senior editor, LANs and operating systems.

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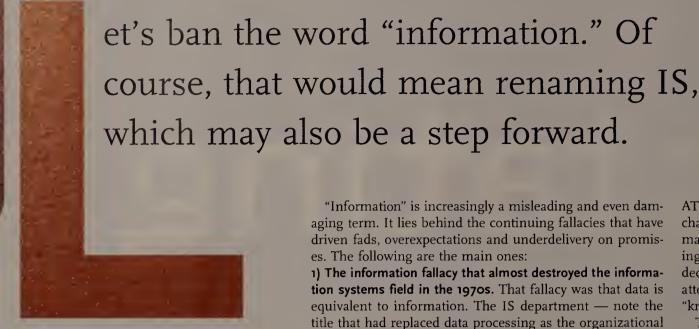
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LET'S FOCUS ON ACTION, **NOT INFO**

PETER G. W. KEEN



"Information" is increasingly a misleading and even damaging term. It lies behind the continuing fallacies that have driven fads, overexpectations and underdelivery on promises. The following are the main ones:

1) The information fallacy that almost destroyed the information systems field in the 1970s. That fallacy was that data is equivalent to information. The IS department — note the title that had replaced data processing as the organizational label for the "computer department" — assumed that its growing data resources constituted an inventory of value to managers. Instead, it largely created a data bureaucracy.

2) The knowledge fallacy that underlies many of the claims about the Internet, the Information Age, Information Society and the like. Here, the assumption is that information equals knowledge. No way. If that were so, we wouldn't be facing a continued crisis in our education system. We are an information-rich society, but are we really knowledgerich? Does the wealth of the Internet as an information cornucopia in itself translate into knowledge? Of course not, whatever the wilder 'net denizens may hope.

The emergence of knowledge management and data warehousing engenders the next dangerous notion: that knowledge equals action.

All these fallacies come from thinking of information as a good in itself. IS looked at how to organize it. The Internet/intranet movement has worked to make it available. The data warehousing school makes it easy to access. They are all supply-side conceptions of the role of technology. They treat information as independent of people. Reading through about 200 articles and conference proceedings on data warehousing for a recent project, I was struck by how little they have to say about action — real people making real decisions to have real impact. They don't look at how those real people — not some abstraction we call "users" become informed. Equally, there's plenty of talk in the groupware and workflow field about sharing information but relatively little about the reasons for sharing.

Most of the impacts of technology on the basics of business and competition have been less about information than about coordination of logistics and the movement of information: point of sale and quick response, for example. ATMs, the exemplar of telecommunications in action, changed everyday life through service access; it's stretching matters to call this information technology. Data warehousing, a major step forward in enabling customer service, decision-making and planning, will succeed only if it pays attention to processes and people. Otherwise, all this new "knowledge" will sit in the warehouse unopened.

Think about your own firm. If a magic fairy instantly gave you absolutely all the information resources the company would ever need, do you think people would instantly know what to do with it and how to use it well? If not, why isn't education and support the largest part of your data ware-

Substitute for "information technology" a phrase such as "coordination technology," "business technology," "collaboration technology" or "learning technology" and you have a different focus - one that begins with people, not the information supply and its organization. In my readings on data warehousing, I felt my age. It was the decision-support systems (DSS) literature of the 1970s all over again. The DSS movement began with a strong focus on decision makers and decision processes; that's what made it the new mainstream. It lost that focus as PCs, spreadsheets and GUIs moved center stage. As a colleague who was a leader in the DSS field ruefully commented years later, we lost the "D" in DSS. The system, not decision and support, became the focus. The data warehousing and knowledge management fields are rediscovering too little and too late what the early DSS field knew: It's information use, not information supply, that we need to address and encourage.

Data supply doesn't create information. Information doesn't lead automatically to knowledge. Knowledge doesn't lead directly to action. Business action and impact are the goal. There's a distinct danger of the data warehousing and knowledge management fields overlooking this. Start with the people and their work, not the information. □

Keen's first book was Decision Support Systems: An Organizational Perspective (1978). He is lightheartedly considering republishing it as Data Warehousing Systems. He can be contacted at peter@peterkeen.com.



Industry watch

Combating the skills shortage

How are some insurance companies handling the information systems skills shortage? Almost 20% of 80 firms surveyed by The Life Office Management Association, an Atlanta-based international association made up chiefly

of life and health insurance companies, are using referrals from their vendors to find qualified applicants. And more than 40% are developing nonsystems employees into programmers, often to work on year 2000 mainframe projects.

People over technology

Investing in IS professionals rather than technology apparently makes a bigger difference among U.S. retail banks. A study from The Wharton School at the University of Pennsylvania in Philadelphia — "Examining the Contribution of Information Technology Toward Productivity and Profitability in U.S. Retail Banking" - indicates that additional investment in IT capital may have no real marginal benefits and may be more of a strategic necessity to stay even with competitors. But investments in IT labor have a much higher payoff (nearly \$450 for every

dollar invested). Researchers also found that the more profitable banks put more emphasis on maintaining IT systems, had more in-house development of IT and less outsourcing and gave IT staffers more input in project selections and funding decisions of IT investments.

Spending up in health care

Health care IT budgets are growing. A survey of 231 health care chief information officers by the College of Healthcare Information Management Executives confirms growth in industry spending. Hospitals and integrated delivery systems dedicated an average of 5.4% of their overall budgets to IT in fiscal 1996, up from 4.8% in 1995. The average IS budget for provider organizations was \$6.7 million in 1995 and \$7.4 million in 1996. Survey respondents expect their budgets for this year to rise as

Buyer's Guide

USER VIEW: Shifts in PC buying patterns, such as the move to direct sales, are nagging IT managers. REVIEW: Tapping in to a vendor Web site can change the whole PC buying process.

By Kevin Lurden

NLY A YEAR AGO, PC users driven by price bought direct from a vendor. If support was their main concern, they bought through a reseller. But the distinction between direct and indirect is clouded today, with each camp copying some of what makes the other so successful.

The dramatic shifts in the PC industry — the copycat strategies and the blurred boundaries between the vendors and resellers — have sent many buyers back to re-examine

what their vendor's competition has to offer, and often those buyers are finding many previous beliefs are no longer the truth.

Computerworld conducted in-depth interviews with a dozen PC managers at large organizations and a telephone survey of 152 other sites to identify the strengths and weaknesses of the competing PC acquisition models and to examine pricing and support trends.

Managers say support from direct vendors today appears more than adequate. At the same time, buyers say indirect vendors are advertising and

MORPHING the C MODEL

CONTINUED FROM PAGE 101

negotiating more attractive prices than they did in the past. Still, preconceived notions may keep buyers from even investigating their options. Yet some of those ideas - highlighted below - may be myths, according to buyers.

"YOU KNOW WHAT YOU WILL GET FROM BIG-NAME VENDORS."

Inconsistency is a beef aired by users of the most prestigious PC companies as well as low-cost suppliers. For years, there has been a perception that namebrand vendors use known components and deliver similarly configured machines. Yet when buyers were asked why they changed vendors, they often said it was because their previous supplier, including name vendors, couldn't provide them with truly identical systems, even in a single order.

"We didn't expect to have this problem with Compaq [Computer Corp.]," says Norman Brideau, database administrator at Arbitration Forums, Inc. in Tampa, Fla. "But we've had several shipments of the same system with several different kinds of motherboards. It's ridiculous."

In addition, vendors that deal through indirect channels may have an additional concern when it comes to inconsistency. It's often the reseller, not the manufacturer, that controls the final product in those situations.

With inconsistency in system configuration, corporate information technology managers get headaches. Troubleshooting and upgrades are easier when you know the hardware you're dealing with, and there are always software and hardware compatibility issues to worry about if supposedly identical systems have different types of memory or BIOS.

Brideau did a bulk order of memory for a number of Compaq ProLiant systeins of same model. His staff didn't realize they contained a variety of motherboards until he opened them up and discovered that some used parity single in-line memory modules (SIMM) and others used nonparity SIMMs. "We were livid — it threw off our entire upgrade schedule," Brideau says. "It was supposed to take us three weeks, and when the ClO came down on week six, he wanted to know what the hell was going on down here."

Tom Milazzo, director of information

at the Kenan-Flagler Business School at the University of North Carolina at Chapel Hill, ran into problems when he went to upgrade a fleet of IBM Value-Point PCs. When he saw the number of different memory types he was dealing with, and their unorthodox BIOS, he knew he had discovered one of the reasons his network crashed daily. "I can't expect to build an infrastructure that stands up if I can't control the quality of my desktops," he says.

Dell Computer Corp. was the only vendor praised by the interviewed users for being adept at building systems with absolute consistency. Milazzo, who has been buying from Dell for two years, says, "Each order comes exactly the way I want them, all alike, right down to the specific drivers for my network boards."

"YOU ALWAYS SAVE MONEY BY BUY-ING DIRECT."

Not necessarily. Yes, even with industrywide price chopping, users say they can save at least \$500 per PC with direct vendors. Indirect vendors sometimes negotiate for lower prices, according to users and analysts, and even the direct vendor's \$500 price advantage doesn't translate into a pure savings. Some users argue that the additional services available to them through their resellers are worth more than \$500.

That wasn't the case for Compaq customer Jeff Collins, IT manager at Dynasty Technologies, Inc. in Kingwood, Texas. He recently purchased systems from Gateway 2000, Inc. and says he received no more, and no less, support from Gateway than from Compaq. He estimates \$150 worth of his staff's labor goes into setting up each system. "We were doing the exact same thing when we bought from Compaq," he says.

With margins so low, "reseller support is almost nonexistent," says Michael Lind, PC support manager at Tredegar Industries, Inc. in Richmond, Va., who has been buying Compaq systems from his reseller, MicroŞystems Warehouse in Lakewood, N.J., for the past three years. I get most of my support directly through Compaq," he says.

Lind says he is mostly paying his reseller to help him stay ahead of the market. "I don't want to worry about configuring with the latest hardware or software. That's the value I look for." He may be typical of corporate managers in that he uses only a limited amount of the support for which he pays.

Dell systems come with one year of

on-site support; three years of on-site service costs \$99 per system, according to Cheri Bowers, PC support manager at Bryan Memorial Hospital in Lincoln, Neb. "And since we estimate a 20% savings per system [by buying direct], of course we're saving money," she says of the \$99 option. Yet, her group calls Dell only when warrantied components fail or when Dell technicians can fix a system faster than her staff can. Bowers says her staff installs and configures the software on each system, except for the operating system and office products that are installed by Dell, and sets up each system on users' desktops.

"INDIRECT CHANNELS MEAN BETTER SUPPORT."

That depends on how much support you need. If you are intent on doing your own installs, memory upgrades and drive replacements, and your IS team is large enough to support your user base, direct vendors may deliver all the basic support you need. However, a direct vendor would never cut it for someone like Dale Cochrane, PC service manager at Humana Insurance Co. in Green Bay, Wis. He has 1,400 PCs and an in-house

A good vendor relation-

ship takes time to devel-

shouldn't be thrown away

op, and users say it

to save a buck.

support staff of 15.

Cochrane says his reseller earns every cent supporting Humana. MicroAge technicians come twice a week to pick up Hewlett-Packard

Co. systems covered under warranty, he says. "I can't afford to have my people calling vendors all the time."

Then there are users like John Mazzella, information systems manager at Commonwealth Scientific Corp. in Alexandria, Va. He stopped buying Compaq systems because he didn't want to ship them out to be fixed. He wants a single point of contact at the vendor, to explain the problem and to have parts delivered the next day. "Gateway does this. That's all I need," he says. "I'm paying very competent technicians on my staff. Money going to a VAR would be like paying double."

A year ago, the scare of inadequate support was all that was holding back Brideau from buying Dell or Gateway systems. But once he had totaled up

the amount of support he used from Vanstar Corp., his Compaq and IBM systems reseller, he decided it didn't make sense to pay for what he wasn't using. "Telephone support was about all we used," he says.

"IT'S BEST TO STICK WITH YOUR **CURRENT VENDOR."**

Users interviewed here say it's true. No matter how good the deal appears with other vendors, users say the relationships they have built with their vendors are worth much more than any short-

Although vendors are always trumping each others' value, price cuts and additional services are only good until the rest of the market follows suit. But a good vendor relationship — one in which your sales representatives know you, your business and the equipment you already have — takes time to develop, and users say it shouldn't be thrown away to save a buck.

Cochrane has certainly had troubles with his reseller, and with a \$100 million annual budget, he has a lot of vendors vying for his business. "I can't say I haven't been tempted by a few of the offers," he says. "But cost is not a big issue for us. Having a strong relationship with our reseller is."

Bowers is another who says she knows better than to be tempted by what may appear to be a better deal. "I wouldn't sacrifice the history I built with Dell for anything, particularly price," she says. Dell has catalogued every system Bowers

has bought. "I give them the service tag number, and they know exactly what's in the machine and how it's configured," she

To get the most out of the relationship, users say it's important to learn the breadth of services vendors of-

fer. There is a tendency to view direct vendors such as Dell and Gateway as mass marketers of low-end PCs. "They sometimes have trouble articulating all they offer," Milazzo says.

And, although time can strengthen relationships, none is required to build one. "It's all about good communication," Cochrane says. Being totally honest from the start is the best advice users say they can give for quickly building relationships that work for everyone. Air all your expectations of the vendor as soon as possible, particularly about service and system availability. "These areas can sour any relationship if you're not on the same page," Cochrane says.□

Burden is Computerworld's feature writer, Buyer's Guide.

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SNEAK PEEK: Power, pricing and production in '98

By James M. Connolly

he funny thing about the PC industry is that no matter how turbulent today seems, you'll look back a year from now and think these were the sane times. The craziness doesn't end.

The coming months will bring faster, cheaper PCs with new options and vendors grasping for the best way to sell, just like 1997. Some of the turmoil stems from causes information technology managers have come to accept. Faster chips give you more bang for the same buck you spent the year before, and new technologies — such as Universal Serial Bus and Accelerated Graphics Port (AGP) cards in 1998 — will boost overall system performance.

Where things get really confusing for IT managers is in the purchase process. Prices tumbled in 1997, and the buying model was recast as buyers re-examined the direct vs. indirect argument and more vendors embarked on build-to-order manufacturing. Price cuts and build-to-order strategies will continue to be hot in 1998, according to analysts.

The average price of a corporate PC will continue to slide in the coming year, according to analyst Chris Goodhue, vice president of end-user computing at Gartner Group, Inc. in Stamford, Conn.

"Intel and the OEMs are being really aggressive on Pentium II rollouts, and those Pentium IIs are falling right into the pricing sweet spots," Goodhue says. Bargains still can be found in traditional Pentium machines. "Maybe customers can save money by not rushing out to buy the latest. I think Pentiums will be viable through most of 1998, or at least the middle of '98."

For many types of users, a Pentium may be fine at this point, as long as it has enough memory, although the Pentium IIs may be a good investment based on their attractive pricing and the fact that the architecture will be around for a while.

Both Goodhue and Rob Enderle, senior analyst at Giga Information Group in Santa Clara, Calif., raise red flags for buyers looking at the sub-\$1,000 PCs that caught so much public attention in 1997.

Enderle has seen some corporate interest in those low-end systems, but he advises IT managers to weigh the low

price against the labor costs involved with replacing the computers a year earlier than they might have to with mid-range machines.

Goodhue says although the sub-\$1,000 PC is worth considering, buyers must keep in mind that the system seldom includes a monitor, and the published price might only buy older technology, such as a 133-MHz Pentium or a nonstandard design.

One reason prices are falling is because vendors are changing how they do business. With build-to-order strategies, vendors assemble PCs only after a customer books an order. Vendors aren't stuck with large inventories of preconfigured PCs, and buyers can better customize their systems.

Build-to-order strategies and the ongoing price cuts are largely a result of IBM, Hewlett-Packard Co. and Compaq Computer Corp. reacting to the success of lower cost, direct vendor

The coming months will bring faster, Computer cheaper PCs with new options.

Dell Corp. And those companies will put still more competitive pressure on Dell in the future, according to Goodhue.

"To be honest, I don't see the No. 1 driver in the choice of a vendor to be direct or indirect. Very simply, it's price. Dell enjoys today, and has enjoyed for some time, a 10% to 15% price advantage. At the end of the day, Dell is on the short list because they are putting price pressure on other vendors," Goodhue notes.

Goodhue says IT managers must be aware of how changes in the industry will impact them and how they will change their relationships with their PC manufacturers. "Overall, these initiatives are going to be good news for customers because they are going to result in lower prices," Goodhue says. "However, in the near term, some of the build-to-order programs and channel assembly programs are just starting to ramp up, and there could be problems. It's worth understanding things such as who is going to assemble my product and what assurances I have on availability."

Enderle offers two pieces of advice for IT managers. First, when dealing with build-to-order strategies, be aware that your system — particularly less common components — may not have been tested as thoroughly as a standard configuration. Second, he says, "Buy big. Be important to your vendor, and then if you have a support problem, they will treat you a lot better."

One of the most important technology developments Enderle sees coming involves system management.

"We're looking for a set of equipment that is much more easily managed from a central site," he says. The person doing the central management might be part of an IT organization running preventive maintenance after office hours or a vendor downloading a software fix.

A key to easier management is that most major vendors are starting to ship Desktop Management Interface (DMI) 2.0-compliant PCs. Managers formerly used DMI 1.0 largely to collect inventory information on PCs and to make limited changes. Now, with

> DMI 2.0, those managers will get a better interface and the ability to make significant changes to a system, such as modifying the BIOS and formatting a hard disk from a central location, Enderle says.

User sites will al-

so benefit from vendors making PCs that boot up faster. "The advantage it provides to the IT manager is that if they have to turn on the machine remotely, they won't have to wait for the machine to start, and that translates into labor savings," Enderle says.

Another technology that analysts agree will be hot in '98 is AGP, which off-loads graphics processing from the CPU to a special bus, resulting in faster overall system throughput.

Users can expect a flood of peripherals based on the Universal Serial Bus architecture starting at Comdex/Fall '97, with digital cameras for still images and videoconferencing being particularly hot in 1998.□

Connolly is Computerworld's technology evaluations editor.

ALL THE TALK ABOUT PC PRICE CUTS TRANSLATES INTO A 13% SAVINGS FOR BUYERS

BY KEVIN BURDEN

Price cuts — How much of what's promised will you actually see, and what other ingenious ways will vendors think of to make up for those cuts by sticking it to you? You might be a bit skeptical of the lures vendors cast to get your attention, but the PC market is showing some credibility here.

A telephone survey of 152 corporate PC buyers shows users are getting very close to what vendors promise. Computerworld's Information Management Group asked these users what they would realistically expect to negotiate

What savings do you expect from vendors advertising a 15% cut in list price?

survey of 152 corporate PC purchasers

from a vendor that announces a 15% list price cut. Nearly half are confident they would get the full 15%. The average is just under 14%. But enough of the hypothetical.

Ninety percent of the users say they are paying an average of 13% less for systems than they were six months ago.

But the cynic in most of us says vendors are surely socking it to us in other ways. No, 60% of these users say.

And the 40% who have seen these savings offset by vendors say it's only because they are buying more advanced PCs for the same cash. "The size of the check I write is no different. But I'm seeing more bang in the systems I'm buying," says John Berryhill, systems administrator at AutoGass Systems, Inc.

Eighty percent of the respondents say their typical users are getting better systems than they are use to, and 64% say more advanced systems will go to their high-end users.

However, price cuts haven't persuaded users to buy more services or to shop for vendors with the best price. Only 9% say they are paying extra cash for extended service plans. And more than 60% say there isn't any reason to change vendors, with many of those buyers noting that all vendors have lowered prices equally.

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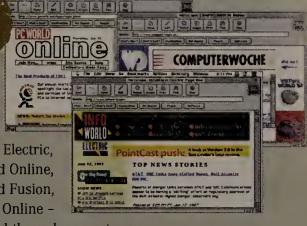
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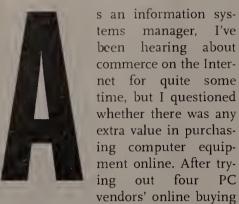


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IS goes shopping on the Web

REVIEW: PC vendor Web sites offer flexibility and convenience for buyers doing research and placing orders

By Thomas Lamoureux



sites, I realized that, yes, there are some definite advantages over conventional telephone sales.

Online purchasing offers choice and flexibility you just don't find in dealing with telephone sales representatives. You get to spend as much time as you want comparing products from competing vendors, pricing the options, reviewing the wealth of product specifications and, in most cases, placing an order. And you can do all of this when it's convenient for you, not just when it is convenient for your vendor.

You don't have to wait on hold, you never have an inexperienced sales repre-

sentative, and when was the last time you dealt with a cranky Web site?

I visited each site I reviewed as would a typical corporate buyer — someone who knows what type of machine he wants but would need to look through each vendor's product line to identify the model that most closely fits his need. I did research to find the right model, worked through the online configuration process to specify the options I wanted, determined the price and then walked through the ordering process. I looked at the quantity and quality of product information, the variety of options available in the online configuration process, the ease and completeness of the order process and how close the vendor could get to the desired configuration.

I set out to shop for a high-end desktop for a power user. I wanted an Intel Corp. Pentium II-based machine running at 266 MHz with 64M bytes of random access memory, a video card with at least 4M bytes of video RAM, a 17-in. monitor, a 9G-byte SCSI-based hard drive, an Iomega Corp. Jaz drive for offline storage, a Microsoft Corp. Natural keyboard and a 10/100M bit/sec. network card. I didn't specify name brands

for the video card, hard drive or monitor, as long as the products used could be identified as mainstream products.

Because the configuration was pretty basic, all of the

vendors were able to deliver my power machine with the exception of the Jaz drive. None had a Jaz drive as an option, though most had Iomega Zip drives.

The SCSI selection was fairly consistent, with each vendor offering the Seagate Technology, Inc. 9G-byte hard drive and an Adaptec, Inc. 2940 controller. Monitors ranged from name brand to vendor brand, and most vendors had ample selections. One surprise was that Dell Computer Corp. didn't offer the Natural keyboard in its online configuration forms. I could order a Natural keyboard, but only after drilling a few levels to the accessories page.

Among the sites reviewed, Dell had the best overall presence, with Micron Technology, Inc. a close second. Dell's site provides a lot of information and is

With electronic commerce emerging, the expectation is that we'll all be making our purchases online in the very near future.

very well-organized. Dell also provides the most options in configuration and order entry, and it was

the only site I visited that offers the ability to review orders. Micron has ample online information and offers a wide range of features in configuration and order placement. Although it doesn't offer an order review, Micron uses online technology to make its sales staff available. Gateway 2000, Inc.'s site offers good product information, but it was the

hardest to work through. It offers more model numbers with slightly varying configurations but offers the fewest options when configuring the machine. □



Lamoureux is director of support services in Computerworld's systems department.



DELL COMPUTER CORP. (Best overall presence) www.dell.com

RESEARCH

When you enter the Dell site, you are given three ways to proceed. You can review product information by going directly to that type of product (for example, desktop or workstation), drill down to customized configurations by type of business (for example, home or business), or go directly to the online purchase menu and, within two clicks, arrive at the configuration screen. The online information presented at the Dell site is ample and well-organized.

Dell also provides suggested configurations to allow you to determine the optimal configuration for a given type of user (or computer use). There are, however, places where the information is sketchy, such as the workstation specifications, which never mention that the workstation contains an integrated network card.

CONFIGURATION

The online configuration screen, in addition to allowing the full range of options, provides configuration cross-checks, both as "online hints" and under the options themselves. For example, it suggests that an integrated drive electronics-based CD-ROM drive is compatible with a SCSI hard disk only when Windows NT is chosen as the default operating system. Although not complete — it allowed mismatched processors and memory modules exceeding the number of available slots — the error-checking was far better than any other site reviewed. In the configuration process, the only confusion came when the online configuration screen mentioned an option for additional network cards. Unfortunately, I wasn't told that the model included an integrated network card, and in my first pass, I assumed this was where I could choose the primary network card. It wasn't until I reviewed the suggested configurations that I realized the workstation came with an integrated network card.

PURCHASING

Once you choose the configuration, you can place the selected machine in a "shopping cart," which lets you configure and purchase additional machines. When your selections are complete, you can go back to review individual items or place the order (or "Checkout," as Dell calls it). If you choose Checkout, you are prompted with a secure form requesting bill-to and ship-to contact information, demographics on your organization, your choice of delivery options and freight carrier and the method of payment. Dell even

lets you enter special shipping instructions.

SUMMARY

The Dell site was very well-organized, making it equally suited to those who are familiar with its product line and those who aren't. It provided the best online documentation of the sites I reviewed, as well as very good product options and a solid, full-featured order-entry process. Dell was the only site that offered the ability to place multiple configurations in one order and provided an online order-review process. Aside from the network card problem, it was easy to work through this site. It provided the most flexibility and was the most enjoyable site I visited. From an "online experience" standpoint, Dell's site was second to none.

MICRON TECHNOLOGY, INC. (A close second) www.micron.com

RESEARCH

When you enter Micron's site, there are two ways to proceed. You can either drill down by specific purchase types (home or small business) or specific product lines (such as workstation or portable). Although there are only two purchase type options (home and small business), each is complete, with good descriptions of the individual product lines and features. When drilling down to the product lines, you are presented with a list of the specific models under that product line. Each model has a brief de-

IS goes shopping, page 108



START ARCHITECTING

Just Code the Cool Stuff

www.synon.com

CONTINUED FROM PAGE 106

scription of the features. Once you select a specific model, you receive a more detailed description and a list of options. You also have the choice of reviewing the model specifications. The information presented is ample, though it isn't as clear and well-organized as the other sites reviewed.

CONFIGURATION

Once you have chosen the model you wish to configure, you can proceed to the "Build and Buy" configuration screen. The configuration screen doesn't contain error validation and thus allows you to order invalid configurations. Also, the model choice contains the processor speed. Once you get into the configuration screen, you're no longer allowed to change the processor. Another configuration option that isn't clear is that certain models (the Powerdigm models) come only with Windows NT, while desktop models allow the choice of Windows 95 or Windows NT. Generally, there are many configuration choices for each of the given options and each of the options is clearly described.

PURCHASING

Once you have selected the options and calculated the system price, you are given two choices. You can request more information about your configuration or you can place your order. Order placement allows the entry of ship-to and bill-to contact information,



company demographics, payment information and special instructions. Payment type contains credit-card information only — purchase orders or company checks aren't allowed as payment options. One procedure Micron adds to the buying process is that the order isn't accepted until it's processed by a sales rep. It surprised me that the other sites didn't do the same. The payment options are limited, but the order process allows the collection of all the pertinent information. Although there are no references to the expected amount of time for a sales representative to call or average delivery information, Micron was the only site visited to provide an "information request" function.

SUMMARY

Micron's site contained enough information to make an informed purchase. The configuration options were among the best, and the addition of the order and information request screens made the process complete. Information wasn't organized as clearly as it was at other sites; when you choose a configuration, you have to back out if you realize the chosen model lacks features you desire. A feature being touted on the Micron site allows the online buyer to contact the Micron sales department either by an interactive chat session or using Microsoft Corp.'s NetMeeting. This feature was still in a beta state, but I didn't find it at any other reviewed site, and it may

give Micron another method to provide solid presales customer support.

COMPUSA, INC. (Reasonably complete) www.compusa.com

RESEARCH

Although it isn't a first-tier direct sales computer manufacturer, CompUSA is moving in the direction of online sales and has its own custom-configured brand. CompUSA has only two main product lines (most other vendors have four to six), so the selection is fairly limited. On the other hand, one advantage is the way the site is set up: It provides concise descriptions of the two lines and then allows you to drill down by selecting the processor type and then working to the options screen. Of the sites reviewed, this was the easiest on which to determine the desired model and then configure it.

CONFIGURATION

The "Online Configurator" is CompUSA's custom configuration model. It shows the two discrete models — the American and the American PRO — and provides brief descriptions of each and then prompts you to choose a processor for a given model. Once you choose the model/processor combination, you see the configuration screen. On this screen, all configuration options are accessible, with the exception of the processor. As with most sites, it displays the base price prior to making configuration changes.



CompUSA hasn't attempted to build validation logic into the Online Configurator and thus allows a buyer to make such invalid choices as selecting a SCSI hard drive without choosing a SCSI controller. Again, this seemed to be the norm across most of the sites reviewed.

PURCHASING

Once your machine is configured, the next choice with CompUSA's site is to process the order. First you are asked to review a list of the options you chose. If you have already registered with CompUSA, you can place the order. If you haven't registered, you can register by providing street address, telephone number, fax number and electronic-mail information, along with the selected password. Once registered, you confirm the shipping and billing information through CompUSA's secure site and then complete the order. The site claims the company will build and ship within 10 days.

SUMMARY

The CompUSA site was reasonably complete. Although the product lines are fairly limited and don't provide a mechanism to contact sales or inquire about availability, this site makes up for its shortcomings with concise presentation of background information and a straightforward order process.

GATEWAY 2000, INC.

(Hardest site to work through) www.gw2k.com

RESEARCH

Entering the Gateway site, you are presented with two options. You can drill down to preselected product models, or you can choose the type of purchase you wish to make (for example, business or home computer). By choosing purchase type, you are presented with the product models most applicable. In the case of a corporate purchase, for example, the preselected categories are network-ready computers, servers and portables.

Each choice presents slightly different models, but for each model shown, there is a checklist of standard options, which makes it easy to choose the appropriate model.

CONFIGURATION

Once you've chosen the model you want, you can view more information about the model, including detailed product specifications, product benchmarks or reviews, or you can proceed to the configuration stage. In the configuration screen, each model is listed with a base price.

Rather than provide a broad range of options at the configuration level, Gateway offers multiple models and configurations for each processor type and then limits options in the configuration screen. This was confusing because, on my first pass, I chose



business purchase, network-ready PCs and what seemed to be the highest-end workstation. Then I found out I couldn't specify Windows 95 or deselect the Intel Corp. LANDesk client software, so I had to go back and choose a different model before I could get the options I wanted.

ORDERING

After the configuration process was complete, I chose the "buy" option, expecting to either register and specify the shipping and billing information or to be presented with a way to forward my order to a sales rep to confirm the details. Unfortunately, after choosing the "buy" option, I was presented with a recap of the order, a quote number and instructions to attach a printed copy of the quote with the purchase order. This was a rather disappointing end to one of the more difficult online configuration processes reviewed

SUMMARY

The organization of the home page provided the best set of choices, but subsequent levels were more confusing. They provide too many configurations from which to choose and only limited options for each. The purchase process (or lack thereof) seemed to be sadly consistent with the way the remainder of the site was organized. Overall, Gateway's site was disappointing

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- 8S. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
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- (b) NetWare (f) Windows NT
- (c) OS/2 (g) Windows
- (d) Unix (h) NeXTStep
- Networking Products ☐ Yes ☐ No ☐ Yes ☐ No Intranet Products
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- Communications Systems/Public Utilities/Transportation
- 70. Mining/Construction/Petroleum/ Refining/Agriculture 80. Manufacturer of Computers, Computer-Related Systems or
- 8S. Systems Integrators, VARs, Computer ervice Bureaus, Software Planning &
- 90. Computer/Peripheral Dealer/Dist./ Retailer 9S. Other_
- 2. TITLE/FUNCTION (Circle one)
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- 22. Dir/Mgr. Network Sys., Data/Tele.
- Comm., LAN Mgr./PC Mgr., Tech. Planning, Administrative Services 23. Dir./Mgr. Sys. Development, System
- 31. Programming Management, Software Developers

- 41. Engineering, Scientific, R&D, Tech.
 - Management 60. Sys. Integrators/VARs/Consulting

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- 13. Treasurer, Controller, Financial Officer
- DEPARTMENTAL MANAGEMENT

S1. Sales & Mktg. Management 70. Medical, Legal, Accounting Mgt.

- OTHER PROFESSIONAL MANAGEMENT
- 80. Information Centers/Libraries, Educators, Journalists, Students 90. Other Titled Personnel

- 3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)
 - Operating Systems
 - (a) Solaris (e) Mac OS (b) NetWare (f) Windows NT
 - (g) Windows
 - (d) Unix (h) NeXTStep

 - Networking Products ☐ Yes ☐ No Intranet Products ☐ Yes ☐ No
- 4. Do you use, specify, evaluate, recommend, or approve the purchase of Internet products and/or services?
 - □No

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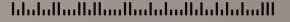
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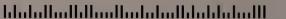
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In Depth



Microsoft is learning to make its voice heard in Washington - and Washington is all ears

the GAME

ICROSOFT CORP.'s Washington lobbying office isn't exactly smack dab in the corridors of federal power. In fact, the software giant's operation, located in the Chevy Chase Pavilion Shops mall, barely lies inside the bounds of the District of Columbia.

But don't let the hideaway locale fool you. Microsoft intends to be a force in U.S. politics.

more than \$2 million on professional lobbyists and campaign contributions. And that sum, which comes from disclosure forms filed with the U.S. House of Representatives and U.S. Senate, doesn't include political fund-raisers or software donations.

Of course, Microsoft certainly isn't alone in

playing politics. The \$11 billion Redmond, Wash.-based company isn't even the biggest lobbying spender By Kim S. Nash and Carol Sliwa among computer industry vendors — Washington graybeard and

antitrust veteran IBM is. But Microsoft has learned well how to work Washington.

Several recent laws and policies make In less than two years, Microsoft has spent Microsoft's \$2 million investment look like a

> ■The extension of the Research and Development Tax Credit. Alongside other large technology companies, Microsoft fought tooth and nail for this tax break on any R&D spending over a base amount.

> > Playing the game, page 110

How a law becomes a Bill

1990

EARLY 1990. Federal Trade Commission (FTC) antitrust investigators start to look at Microsoft because of an agreement it signed with IBM regarding DOS and OS/2. The pact was announced at Comdex.

Microsoft hires Bill Gates' father's law firm, Preston Gates Ellis & Rouvelas Meeds, as counsel in Washington.

1992

Microsoft creates its own political action committee (PAC), which gives \$22,250 to federal candidates and registered committees in 1991-92 election cycle.



EARLY OCTOBER. Steve Ballmer, Microsoft's No. 2 executive, introduces Vice President Al Gore at a fund-raiser; Ballmer, a Harvard University buddy of Gore's, gives \$2,000 to the Clinton/Gore campaign.

oct. 20. Ballmer writes a letter to software executives in the Pacific Northwest urging them to support Clinton/Gore.

NOVEMBER. Gates votes for Clinton/Gore ticket.

DECEMBER. The FTC files a 250-page report that recommends a court injunction against

Microsoft; it alleges the company practiced unfair business tactics.

1993

EARLY JANUARY. Microsoft cosponsors a Washington reception for Speaker of the House Tom Foley (D-Wash.).

FEBRUARY. After several days of intense lobbying by Microsoft rivals, including Provo, Utah-based Novell, Inc., the FTC votes on whether to take action; it deadlocks at 2-2.

SUMMER. Gates flies to Washington to lobby FTC commissioners.



EARLY JULY. Sen. Howard Metzenbaum (D-Ohio) writes a letter to FTC Commissioner Janet Steiger, an appointee of George Bush, urging that the FTC turn the case over to the U.S. Department of Justice if another deadlock occurs. Sen. Orrin Hatch (R-Utah) writes a similar letter.

WEEK OF JULY 15. Gates visits all four voting FTC commissioners.

JULY 21. The FTC deadlocks 2-2 again on whether to take action against Microsoft.

JULY 28. The Justice Department asks to see the FTC's Microsoft files. (Experts say it is unusual for the Justice Department to pick up an antitrust case the FTC has rejected.)

JULY 29. The Justice Department receives the FTC's Microsoft files and takes over the investigation.

1994

In the 1993-94 election cycle, Microsoft and its PAC give \$42,741 to federal parties and candidates.

JULY. The Department of Justice submits a consent decree to Judge Stanley Sporkin, who spends most of the next year criticizing it; he ultimately rejects it (see August 1995).

Playing the GAME

CONTINUED FROM PAGE 109

■The Foreign Sales Corp. provision, which lets companies take a 15% tax break on profits generated outside the U.S.

■ The Clinton administration interceded in a dispute with the U.S. military and smoothed the way for the Federal Communications Commission to grant Bill Gates and partner Craig McCaw a worldwide radio frequency license for satellites.

Microsoft shares many of its lobbying successes, such as the tax breaks mentioned

Where the Month

Like any multinational corporation, Microsoft lobbies for scores of causes in many countries — sometimes on its own, often in conjunction with other vendors. But some high-impact items — taxes, antitrust, international relations — get a big share of the company's attention.

Taxes

No one likes to pay taxes. But while you may have indulged in some kvetching and Pepto-Bismol in April, Microsoft hired 10 lobbying firms this year and last to fight the tax man on several fronts. Four of those firms did nothing but tax work — either lending advice or trying to convince the House, Senate, Department of Treasury and Department of Commerce that Microsoft should get a better deal.

It worked.

Microsoft, with hundreds of other technology companies, fought hard to get an extension of the Research and Development Tax Credit. That's where Congress lets companies take up to a 20% tax break on any R&D spending over a particular base amount, which is calculated using the company's previous R&D rates.

Some call it corporate welfare. The federal Office of Technology Assessment has found that mostly big companies — and not struggling start-ups — have benefited from the credit.

But Microsoft, which has \$9 billion in the bank, got its wish. An extension of the credit was included in the Balanced Budget Act of 1997 that President Clinton signed Aug. 5.

Elsewhere, Microsoft spent big on lobbying to get tax protection on sales made outside the U.S. The so-called Foreign Sales Corporation (FSC) provision essentially lets companies take a 15% tax break on profits generated outside the U.S. Rep. Jennifer Dunn (R-Wash.) cosponsored the proposal with Rep. Robert Matsui (D-Calif.).

Until this summer, it was unclear whether software companies could form FSCs. But Dunn's bill passed, and Microsoft FSC Corp. in the U.S. Virgin Islands became legitimate. Had the law been in effect during Microsoft's 1997 fiscal year, the company could, in theory, have paid 15% less in federal taxes on the \$1.48 billion in operating profit that came from beyond U.S. soil.

"That could easily be millions of dollars saved," said Robert Ross, president of the FSC/DISC Tax Association in White Plains, N.Y.

Microsoft also filed a suit in U.S. Tax Court in August 1996 claiming it was overtaxed by \$19 million in 1990 and 1991. The case is still pending. Hey, with a 1997 U.S. tax bill of \$1.1 billion, every bit helps.

But if you've ever been audited, take heart: The Internal Revenue Service is examining Microsoft's tax returns for 1992, 1993 and 1994, according to the fine print in Microsoft's 1997 annual report.

Antitrust

The U.S. Department of Justice asked a federal court last month to fine Microsoft \$1 million for every day it compels PC vendors to bundle its Internet Explorer browser with the Windows operating

above, with other computer industry vendors. And compared with the lobbying heavyweights from, for example, the tobacco and automobile industries and organized labor, the company is thrifty (see story page 112).

But Microsoft, already a dominant force in the high-technology sector, is spreading its influence to industries such as telecommunications, electronic media and the Internet. Indeed, Microsoft ranks with the most powerful companies in the world.

Intellectual property, encryption and trade issues are top priorities, according to Jack Krumholtz, Microsoft's lead lobbyist in Washington. The vendor, for example, wants stronger protections written into copyright laws.

On encryption, Microsoft wants to loosen laws banning the shipment of products with strong cryptography.

Yet there is another big reason Microsoft wants to become Washington-savvy:

Microsoft's presence in the nation's capital has grown from zilch at the beginning of this decade. Then again, the company has arrived fashionably late at many a technology party only to go on to dominate.

Will politics be just another operating system war?□

Nash and Sliwa are Computerworld senior editors. Their Internet addresses are kim_nash@cw.com and carol_sliwa@cw.com.

NEY goes

system that gets preinstalled on their hardware.

The Federal Trade Commission (FTC) has also expressed interest in Microsoft's browser marketing tactics, as have the attorneys general in six states, the European Commission and Japan's Fair Trade Commission.

These investigations have so far changed little about how Microsoft does business. However, Microsoft isn't waiting until the current probes grow legs.

Kimberly Ellwanger, hired by Microsoft in 1992, and Jack Krumholtz — both lawyers with public policy expertise — are among the lobbyists entrusted with the chore of convincing Congress and other Capitol Hill politicos.

Indeed, of all the lobbying money Microsoft spends, one of the biggest chunks goes to Ellwanger, Krumholtz and their six lobbyist colleagues. The team, which handles other issues as well, has drawn \$140,000 as of June, according to disclosure forms filed in the House and Senate. Last year, it got \$558,000. That seems like short money when the alternative is to put a million bucks in Janet Reno's parking meter every day.

Krumholtz said he "focuses primarily" on other issues but does get involved when questions about software competition arise.

International relations

With 40%, or \$4.53 billion, of its \$11.36 billion in sales last year generated outside the U.S., foreign trade is a big deal to Microsoft. To ensure it stays that way, Bill Gates has traveled the globe in the past several months. He met last month with world leaders in the

U.K., Germany, Russia and Switzerland. In June he was in Japan and Korea. And in March he was in India, where Gates was hailed as a celebrity. (Of course, it's not unusual for corporate titans of all stripes to do a fair amount of globetrotting.) But with Gates, it's a media event at almost every stop.

Here's a sampling of other international dabblings.

China. When the question arose early this year of whether the U.S. should renew Most Favored Nation trading status for China, Microsoft handed the project to Gates' father's Washington law firm. Preston Gates Ellis & Rouvelas Meeds, like other lobbyists, hustled to keep the massive — and growing — market open for U.S. products.

Brazil. The Business Software Alliance (BSA) recently did some of Microsoft's bidding. In May, the trade group sent a representative to help hammer out the intellectual property provisions in the Free Trade Area for the Americas (FTAA) pact that President Clinton crossed Latin and South America to promote this fall. FTAA would lower tariffs for companies doing business in the 34 countries involved — sort of a supersize North American Free Trade Agreement.

Companies from other industries were there, too. But the large Microsoft contingent caught the attention of James Love, director of Ralph Nader's Consumer Project on Technology.

"I didn't see another American software company in the room," Love says.

By the way, no one will reveal how much of the BSA's \$20 million budget Microsoft contributes, but it is said to be the majority. Critics contend that the BSA is little more than a mouthpiece for Microsoft — a charge vehemently denied by Robert Holleyman, BSA's director.

- Kim S. Nash and Carol Sliwa

AUGUST. Gates and President Bill Clinton golf on Martha's Vineyard.

1995

Nathan Myhrvold, Microsoft's chief technology officer, is assigned to study how Washington works.

SPRING. Microsoft opens a Washington lobbying office and hires Jack Krumholtz.

APRIL. Microsoft drops proposed acquisition of Intuit, Inc. after the Justice Department files suit to nix the deal.



AUGUST. The Department of Justice concludes investigation of Microsoft with a consent decree that critics deride as a wrist-slap. (History: The decree was originally proposed in July 1994 but was rejected by Judge Sporkin.) The Justice Department and Microsoft protest that Sporkin should be removed from the case; he is. The decree is assigned to Judge Thomas Penfield Jackson.

FALL. Microsoft hires a second lobbying firm: Downey, Chandler, founded by former Rep. Thomas Downey (D-N.Y.) and Rod Chandler, former Republican congressman from Washington state.

NOVEMBER. After they heavily lobby lawmakers in several countries, Gates and Teledesic partner Craig McCaw overcome one hurdle in a plan for a global satellite network: An international body identifies a special band of radio spectrum for use by companies planning such networks.

1996

For the year, Microsoft pays \$1,140,000 to lobbyists.

In 1995-96 election cycle, Microsoft and its PAC give \$126,500 to federally registered committees and candidates. That's almost three times the amount it spent leading up to the 1994 election and more than five

times greater than the 1992 election.

Microsoft helps fund a dinner for First Lady
Hillary Rodham Clinton in Seattle and annual

Republican House and Senate gala dinners in Washington.

MID-1996. Microsoft hires Grover Norquist as another outside lobbyist. He is a conservative who specializes in tax issues and is said to be close to House Speaker Newt Gingrich and other Republicans.

paq, Dreamworks, the Directors Guild of America and the International Photographers Guild in a new lobbying organization called Americans for Better Digital TV.

SEPTEMBER. The Justice Department starts examining Microsoft's browser practices.

Microsoft donates software to both major parties for their conventions.

DECEMBER. Gates is floated as possible participant in Clinton's inaugural festivities. He doesn't participate.

1997

JANUARY - JUNE. Microsoft pays \$660,000 to outside lob-byists for Washington work.

How a law becomes a Bill, page 112

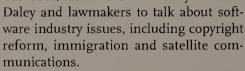
How a law becomes a Bill

CONTINUED FROM PAGE 111

MARCH 14. The FCC grants Gates and McCaw a worldwide license for a specific radio frequency needed to advance their plan to launch 840 low-orbit satellites to circle the globe. The Clinton administration helps navigate a dispute among Gates/McCaw and the U.S. military and Associated Communications LLC, a wireless company.

MAY 8 - 9. A Microsoft-sponsored CEO summit takes place at Gates' house. Attendees include FCC Chairman Reed Hundt, Al Gore and 1996 presidential candidate Steve Forbes.

EARLY JUNE. Gates goes to Washington with nine other software CEOs, meets with Gore, Commerce Secretary William



JULY. The Clinton tax bill includes a big tax cut for software companies, from which Microsoft will benefit the most.

JULY 30. Gates speaks to the National Governors' Association in Las Vegas about how much better computer systems would make state government.

As of September, Microsoft and its PAC give \$44,000 to federal party committees and candidates.

SEPT. 12. Microsoft holds a policy briefing in Washington to outline its stances on major issues before Congress and tries to dispel the notion that the company is competing unfairly in the browser market.

SEPT. 30. Microsoft releases Internet Explorer 4.0, a version of its Web browser that the company claims is integrated with the Windows operating system. The product will be at the center of a Justice Department inquiry a few weeks later.

OCT. 6. Gates tells Gartner Group Symposium audience that Justice Department antitrust scrutiny has forced the company to rethink its acquisitions strategy and that Microsoft will now buy only smaller companies or invest in larger ones.

OCT. 20. The Justice Department and Attorney General Janet

Reno ask a federal court to fine Microsoft \$1 million per day for marketing its browser unfairly and allegedly violating the 1995 consent decree.

NOV. 4. Sen. Hatch, now chairman of the Senate Judiciary Committee, holds hearings to explore anticompetitive tactics in the software industry.

NOV. 13 - 14. Ralph Nader sponsors a conference to discuss Microsoft's business practices after blasting the company for being anticompetitive; Sun, Netscape and crusading antitrust, anti-Microsoft attorney Gary Reback agree to attend. Brad Chase, a Microsoft vice

president, says the company will not participate in the conference, which he calls "an inquisition of Microsoft." But he adds that Microsoft will "probably have someone watch" the proceedings.

NOV. 16. Gates speaks at Comdex in Las Vegas.

Sources include Microsoft documents, reports filed in Congress, the Federal Election Commission, Overdrive by James Wallace and press reports, including some from Computerworld.



ove over, Philip Morris. The computer industry wants a larger chunk of the lobbying turf on Capitol Hill.

Sure, high-technology companies aren't in the same league as the real high rollers in the spending arena. Last year, they poured at least \$20 million into in-house lobbyists and outside firms to work the trenches.

Compared with the money other industries — such as tobacco, oil, automotive and insurance — pump into Washington, that's chump change. Philip Morris Cos. could have bought a brand-new Honda Civic for each freshman at Harvard University with the \$19.6 million it spent protecting the interests of the tobacco industry last year.

But more and more high-tech companies recognize that lobbying is an essential cost of doing business as their industry's issues increasingly intersect governmental and regulatory areas.

No longer can a high-profile CEO come to town and expect his one-shot splash to be enough to influence Congress and the executive branch. "You have to have a presence here," says U.S. Rep. Anna Eshoo, a Democrat whose district encompasses the heart of the Silicon Valley. "You have to work these issues because there are thousands of people with thousands of issues that will fill the void if you don't."

IBM, the dean of the high-tech lobbying effort, shelled out close to \$4.9 million last year and, outpacing that rate, unloaded another \$3.2 million during the first half of this year. Sure, technology issues such as electronic commerce and encryption are high on Big Blue's radar screen. But with more than 500,000 employees participating in retirement and health-care plans, standard sorts of business issues also get keen attention, says Chris Caine, vice president of governmental programs at IBM in Armonk, N.Y.

IBM has maintained a Washington governmental affairs office for more than 20 years and employed 30 internal lobbyists over the past 21 months, along with a few outside firms for assistance. By contrast, Microsoft employed only eight internal lobbyists but nine outside firms.

Perhaps the most surprising lobbying force on Capitol Hill, given its relative age and size, is Netscape Communications Corp.

Just 3-1/2 years old, Netscape has about 10% as many employees as Microsoft and 4% as much revenue. Yet the Mountain View, Calif., software maker spent \$960,000 on lobbying last year, nearly matching Microsoft's \$1.1 million.

Roberta Katz, general counsel for Netscape, attributes her company's relatively heavy lobbying to the experience she and CEO James Barksdale garnered in a heavily regulated industry — Katz and Barksdale formerly worked at McCaw Cellular.

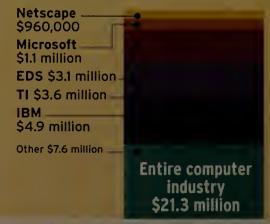
"It was clear to me when I came to Netscape that it was as much about communications as it was about software," Katz says. "And whenever you have issues related to communications, you're going to have issues in Washington."

Netscape has been a leader on encryption issues, which consume the bulk of the company's lobbying time, Katz says.

But records also show that Netscape has been actively lobbying in Washington on antitrust issues that affect the computer industry. — Carol Sliwa and Kim S. Nash

HUFFING AND PUFFING

- ► The nascent computer industry lobbying effort has a way to go if it wants to match Beltway veterans such as labor, automotive and oil interests.
- ► Last year, for example, Philip Morris Cos. alone spent almost as much lobbying money as the computer industry.*



Philip Morris Cos. \$19.6 million

Source: Center for Responsive Politics, House Documents Office *Totals represent only companies that made campaign contributions

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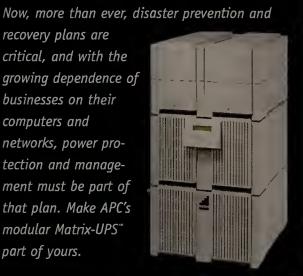


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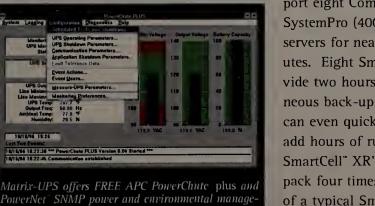
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IT Careers



Aggressive recruiters, consultancies and vendors are using offbeat ways to lure IS talent. Their successes offer lessons for corporate IS

BY STEVE ALEXANDER

ou think you're an aggressive if anyone else in the shop might be interested. hiring manager? Listen to this. A legendary female informa-Detroit area telephoned compa-

emergency and ask to speak to a programmer who worked there but whose name she didn't know. The first technical person who answered the phone got a pitch; if it didn't work, the fraudulent nun would ask

Although such forceful tactics still raise eyebrows, they don't raise as many as they used to. tion systems recruiter in the "I've had job candidates offer me phone lists from where they work," confides Jeff Jones, a nies and claimed to be a nun principal at IS recruiting firm AJM Professional named Sister Mary. She would say there was an Services in Troy, Mich. "I don't turn them down."

> But even with competition for IS professionals intensifying, most corporate IS hiring managers still seem unwilling to try some of the unconventional recruiting techniques that appear to be working for hard-hitting IS recruiters

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and vendor companies.

Overreliance on daily newspaper advertising — with job fairs a longtime recruiting standby — appears to leave corporate IS lagging in the recruitment wars.

"We do run newspaper ads, but we're starting to recognize they are not getting us the volume of results we need," says Mike Giannini, director of staffing at American Century Investments, a mutual fund company in Kansas City, Mo.

Bill Hickmott agrees.

"People who are good don't have to look for jobs, because jobs come looking for them. And for somebody who is working, there is reduced incentive to pick up a newspaper and read the help-wanted section," says Hickmott, who handles technical professional staffing at Liberty Mutual Information Systems, the Portsmouth, N.H.-based information technology arm of Liberty Mutual Insurance Group in Boston. Using mostly newspaper and radio ads and job fairs, his company requires up to nine weeks to fill IS jobs that range from entry-level development to senior project management.

But there are other ways to recruit; some are expensive, some clever and many outrageous. All require breaking out of the recruiting mold. And, although most are in the early stages, there's at least anecdotal evidence that they work.

SIGN OF THE TIMES

The shortage of IS professionals led The MarMaxx Group in Framingham, Mass., to rent a billboard on Route 9 in Westboro, Mass., to announce the company's IS staffing needs. The company, which is the operating company for clothing and accessories retailers T. J. Maxx and Marshalls, Inc., says it spends between \$8,000 and \$12,000 per month on the bill-

board. The first

billboard netted two hires; the second billboard is still on display.

"We need to try some things that maybe you wouldn't have done two years ago because you didn't have to," says Bill Robinson,

IS project manager of the systems division, which recently relocated from Framingham to Westboro. "Our philosophy is that newspaper ads don't really do it."

JOB LEADS FROM HEAVEN

Aggressive recruiters at outsourcing firms and vendor companies find that unconventional recruiting techniques can sometimes pay off.

When Cypress Semiconductor Corp. in San Jose, Calif., heard about layoffs at nearby competitor Cirrus Logic, Inc. last April 23, it hired an airplane to fly over Cirrus Logic's building towing a banner that said, "Cool jobs at www.cypress.com." The action was a calculated risk by a company that typically has 100 IS vacancies at a time and takes up to eight weeks to fill a job.

"I decided to do the airplane because I was looking for a different recruiting technique to attract employees quickly," says Vickie Turner, human resources manager of staffing at Cypress. The flight persuaded 10 Cirrus Logic employees — eight of them technical people

to interview for jobs at Cypress. In the end, none of the technical people was hired. But Turner insists the airplane money was wellspent because of the con-

siderable publicity Cypress got for the stunt, which included flying the banner over Silicon Valley's crowded Interstate Highway 880.

"I would do it again. We must try nontraditional ways of recruiting because we're getting only a very limited response from newspaper advertising," Turner

ON THE OUTSIDE LOOKING IN

Cisco Systems, Inc., a manufacturer of networking equipment in San Jose, uses its World Wide Web page in an unconventional recruiting campaign called "friends@cisco." After filling out a Web page questionnaire, a person curious about Cisco will get a call from a Cisco employee with the same skills who can talk about what it's like to work for the com-

"The whole idea behind this was to come up with an employment campaign to target people who were happy and successful in their current jobs," says Michael McNeal, director of employment at Cisco. "We got folks inside Cisco to volunteer to be 'friends.' If the people they talked to were hired, they got the same employee referral bonus they would have gotten if they had known those people." Currently, Cisco lumps the friends campaign results with its employee-referral campaign and thus doesn't track friends results separately. But McNeal says the friends campaign has been successful.

The Web page recruitment effort was pursued because recruiting campaigns based only on "newspaper ads are not very effective anymore. The reality is that if people are really good at what they do, they are working," McNeal says.

LOVE AT FIRST SIGHT

Dell Computer Corp. in Round Rock, Texas, used videoconferencing to extend its recruiting efforts to Recruit '97, a job fair held in New York in September in connection with the IT Forum show. Dell hired National Career Search, Inc. in Boulder, Colo., which set up PC-based videoconferences at the show. That permitted instant job interviews between IS professionals attending the show and Dell recruiters in Texas.

Wayne Anderson, national sales director at National Career Search, says such videoconferencing speeds up the recruitment process.

"Typically, you've got swarms of people at a job fair, and your company has two or three recruiters just collecting resumes and setting up appointments to follow up. But we were doing screenings at the show, then hooking job candidates up with the correct Dell recruiter in Texas," Anderson says.

Rhonda Gomez, a project specialist for career fairs and recruitment advertising in Dell's staffing department, says videoconferencing "was a way to use a show that we would have kissed off otherwise because we don't get enough people from New York. This was a low-cost alternative to appearing in person, and we're bringing in two people interviewed at the show for second interviews."□

Alexander is a freelance writer in Edina, Minn.

Raiding, offbeat recruiting catching on

s IS job candidates have become harder to find, recruiting techniques that were once considered unethical, such as raiding competitors, are becoming more common.

"There is less bias against raiding than in the past," says Jeff Jones, a principal at IS recruiting firm AJM Professional Services. "Clients regularly say to us, 'We know where you can get these people.' And many times, if we ask a client if they know where we can find a person, they say, 'As a matter of fact, I do.' They don't want to do it but don't mind us doing it."

But nontraditional recruiting has risks: It can be expensive, and there's no guarantee of results. Lina Fafard, vice president of training and marketing at recruiting firm The Partners in Torrance, Calif., says she spent \$8,000 on a direct-mail campaign that didn't work. And some unconventional recruit-

ing techniques she'd like to try cost too much for her. For instance, buying an advertising banner at Mighty Ducks hockey games at the Anaheim (Calif.) Sports Arena would have cost a minimum of \$75,000 for the season.

Instead, Fafard spent \$5,000 for a two-month banner ad on America Online that will be seen only by California subscribers.

Dick Stone, an independent IT recruiter in Princeton, N.J., has developed a much lower-cost approach to recruiting: He's turned to "resume mining" on Internet Web pages devoted

to IS jobs listings. Many such pages have search-

"Technical people are not happy about having to answer ads and send out resumes. Posting to a database is an easy way for them to get their resumes out," Stone says. By mining resume databases, he finds candidates with five to seven years of experience.

able databases of IS job candidate resumes.

Adds Mark Mehler, co-author of "CareerXRoads," a directory for job searching on the Internet, "A good resume miner can make six figures."

But Stone says he doesn't have much competition.

"Other recruiters could do this, but I don't think many are. They don't know how, and they are wedded to putting ads in the newspaper or on the Internet and waiting for responses." As a result, Stone says, resume mining gives him a big advantage over corporate IS recruiters.

"Traditional IT departments are not doing anything unusual when it comes to recruiting. They're so far behind it's pathetic," Stone says.

Steve Alexander



- Jeff Jones, AJM Professional Services

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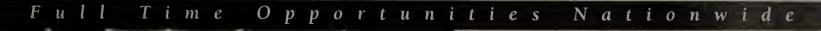
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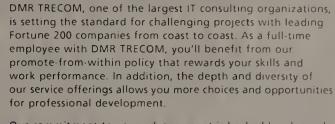
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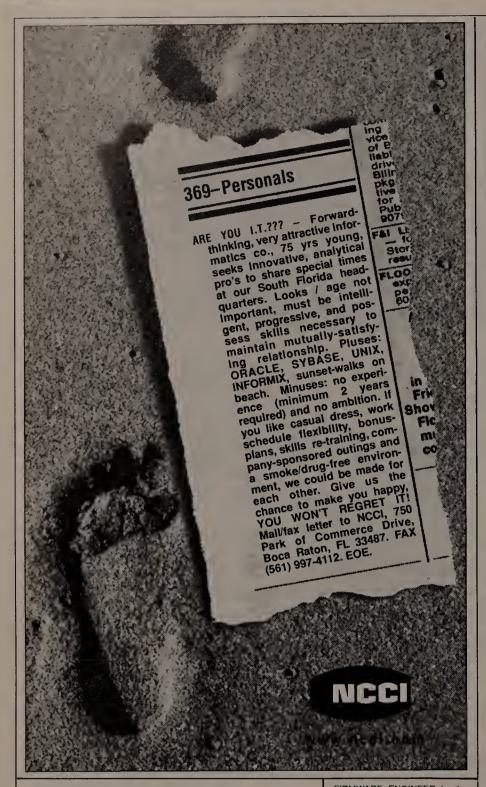
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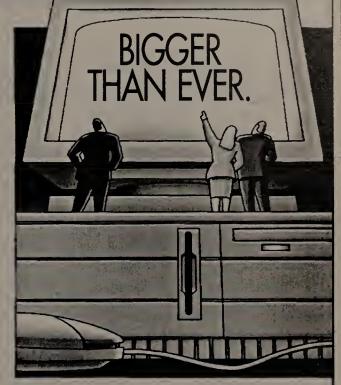
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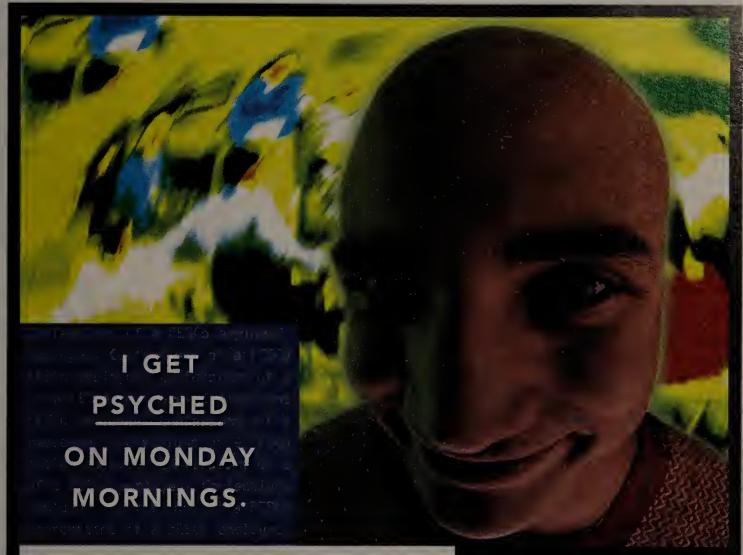
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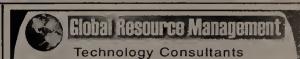
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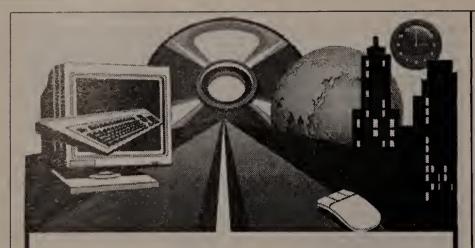
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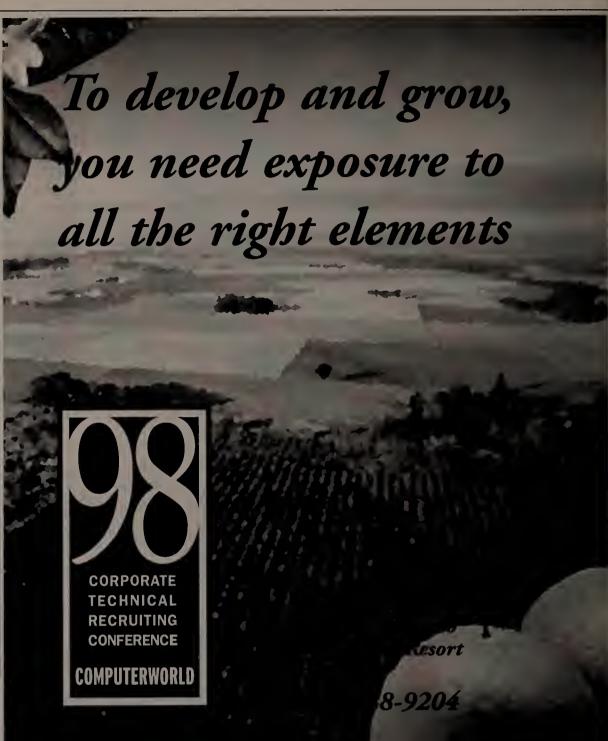
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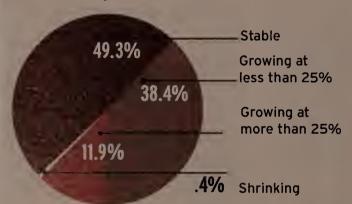




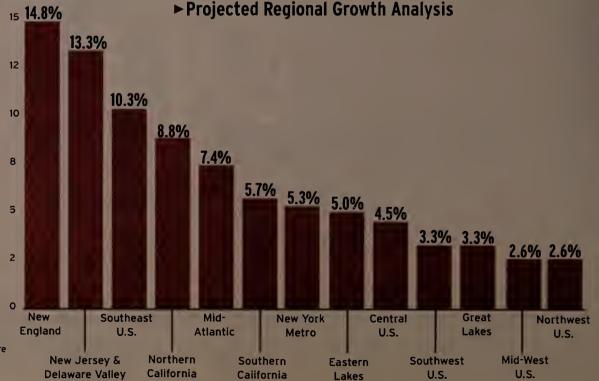


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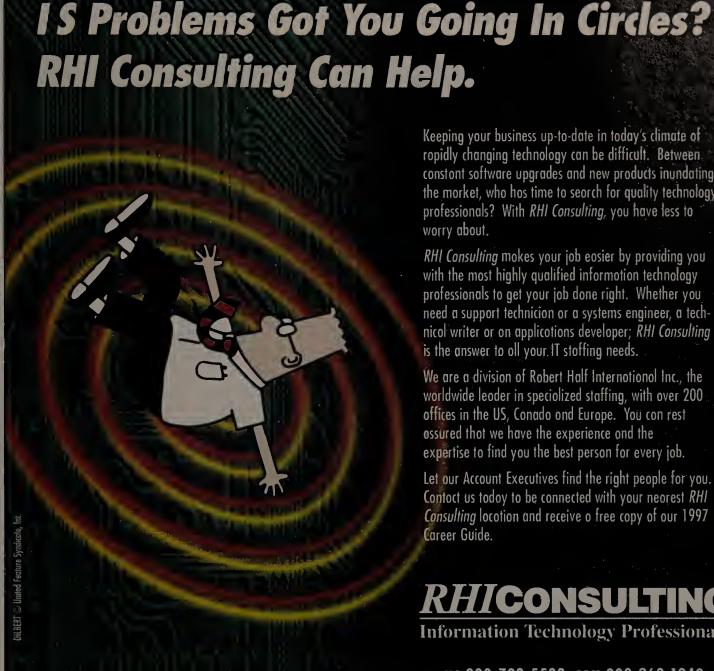
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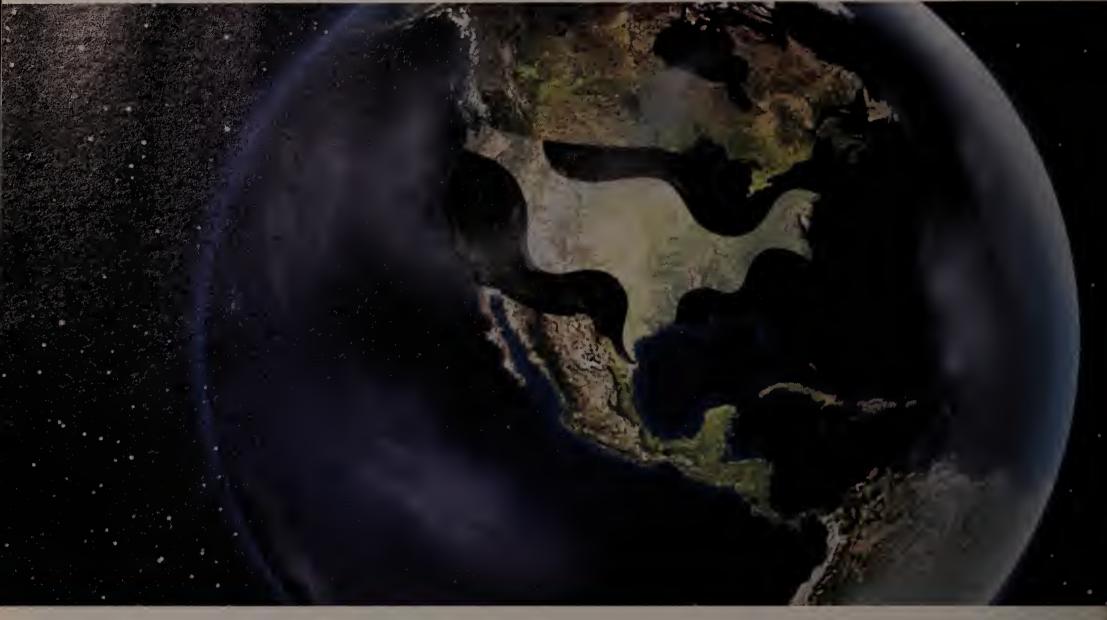
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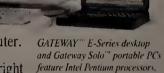


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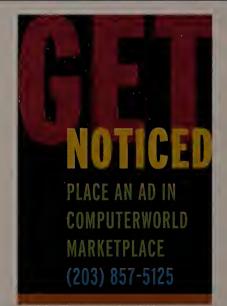
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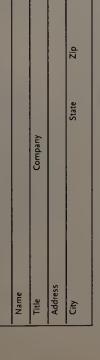
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Director: Fred LoSapio; Senior District Manager: Walter Hodge; District Managers: Kim Bailey, John Bosso; Account Executive: Maureen Grady; Sales & Office Associate: Susan Kusnic; Sales Associates: Jean Dellarobba, Erica Driscoll, Valerie Lusczek, John Radzniak, Mack Center 1, 365 West Passaic St., Rochelle Park, NJ 07662 (201) 587-0090 Fax: (201) 587-9255, (201) 587-1289 TDD: (800) 208-0288

Director: Ernie Chamberlain; District Managers: Aimee Einstein, Angela Flores, Denyce Kehoe; Sr. Account Executive: Claude Garbarino; Account Executives: Larisa Gagainis, Andrea Zurek; Sales Associates: Bonnie Jo Bouchard, James Dunn, Alicia Giovannini, Amy Hudson, Nipool Patel; Operations Coordinator: Emmie Hung; Office Services: Jessica Abude; Sales Coordinator: Yvonne

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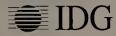
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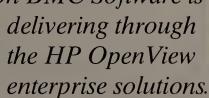
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TOK TOWN

The Week in Stocks

EXCH 52-WEEK RANGE

Gainers



Losers



Mapinfo Corp22.1	PSINet
Computer Horizons 15.6	3 COM Corp17.3
Sequent Computer Sys12.3	Centura Software17.2
MCI Communications Corp12.0	Platinum Software14.1
Sprint Corp 11.5	Texas Instruments13.4
EMC Corp10.8	At Home Corp13.3
Bellsouth Corp9.6	Netrix Corp12.9
Symantec Corp9.6	Proteon Inc12.5
D O L	LAR

Mary Mary	D O L	LAR	
AMERITECH Corp.	6.13	Texas Instruments	14.94
EMC Corp	6.06	3 COM Corp	6.63
Sprint Corp	5.94	America On-Line	5.5 <i>6</i>
	ons(H) 4.56	Amazon.com	5.50
	tems 4.56	McAfee Associates	4.3
	4.50	Arbor Software	-4.13
	ions Corp4.44	Bay Networks Inc	
	4.38	Adaptec Inc	
Compacer Horizons	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	7.00p(2011.07111111111111111111111111111111111	

INDUSTRY ALMANAC

Yahoo! Stock gets hot

fter it was initially dismissed by some market watchers, one of the World Wide Web's best-known brands is slowly turning heads and opinions in its direction.

Yahoo, Inc. (Nasdaq:YHOO) has long been a Web byword and, as an encyclopedic search engine, has provided many Internet users with their first reliable Internet signpost.

But that wasn't enough to impress some Wall Street analysts when the company first went public in April 1996. One analyst who attended a presentation to drum up interest in Yahoo's initial public offering recalls being amused by the flash and dazzle—yet still walking away wondering how serious the company could be when its top executive had the title "Chief Yahoo."

But that perception has changed. Keith Benjamin, an analyst at BancAmerica Robertson Stephens, a San Francisco-based investment house, says he is "increasingly impressed by Yahoo's fundamental momentum." Yahoo will continue to be a prime beneficiary of advertisers and electronic retailers that are spending more money on the Web, he says.

Yahoo was ranked as the Internet's most-visited site in October, with 17.2 million visitors. The hits outpaced Yahoo's closest rival search engines — Excite, Inc. and Excite's Web-Crawler — in a poll conducted by Relevant Knowledge, Inc. in Atlanta.

"Yahoo is way out in front of its competitors," says Paul Noglows, an analyst at Hambrecht & Quist, Inc. in San Francisco. "What they're trying to do now is to take their user base and transform it into a member base." Yahoo hopes to do this by encouraging users to sign up for the free personalized information service or by giving them the tools to follow stock portfolios with the Yahoo Finance service, he says.

Yahoo also has been very financially sound, Noglows says.
Yahoo is still the only search engine company posting profits —
several quarters in a row now — and its revenue this year has
more than doubled compared with last year's. — Stewart Deck

REVVED UP YAHOO

Except during the market's October dip, Yahoo's stock price has been rising on steady profits and growth



				Z 9M	CHANGE	CHANG
Cor	mmun	ication	s and Network Service	s (OFF 1.7	76%
COMS	81.38	24.00	3 COM CORP.	31.69	-6.63	-17.3
AIT	72.75	54.75	AMERITECH CORP	72.75	6.13	9.2
ASND	80.25	22.63	ASCEND COMMUNICATIONS (L)	24.81	1.00	4.2
T	50.94	30.75	AT&T	48.94	1.94	4.1
BNYN	6.50	1.19	BANYAN SYSTEMS INC.	3.22	-0.03	-1.0
BAY	41.88	15.38	BAY NETWORKS INC.	28.94	-3.69	-11.3
BEL	85.25	\$6.75	BELL ATLANTIC CORP.	84.00	3.38	4.2
BLS	51.38	36.75	BELLSOUTH CORP.	51.38	4.50	9 6
BRKT	34.50	9.25	BROOKTROUT TECHNOLOGY	13.75	-0.25	-1.8
CS	46.50	25.81	CABLETRON SYSTEMS	27.88	-0.63	-2.2
CGRM	21.88	8 6 3	CENTICRAM COMMUNICATIONS	15.63	-1 25	-7.4
CSCO	86.63	45.25	CISCO SYSTEMS INC.	81.31	-1.13	-14
CMNT	7.00	3.31	COMPUTER NETWORK TECH.	4.38	-0.06	-1.4
DIGI	32.75	13.38	DSC COMMUNICATIONS	23.00	-2.31	-9.1
FORE	43.50	10.00	FORE Systems Inc.	18.00	1.25	7.5
GDC	12.38	5.38	GENERAL DATACOMM INDS.	5.50	.0.44	-7.4
GSX	53.00	36.13	GENERAL SIGNAL NETWORKS	40.25	-1.38	.3.3
GTE	52.25	40.50	GTE CORP.	46.38	3.88	9.1
LU	90.75	44.75	LUCENT TECH.	81.69	-1.25	-1.5
MADGE		4.50	MADGE NETWORKS NV	5.63	-0.25	- 4.3
MCIC	43.38	27.31	MCICOMMMUNICATIONS CORP.	41.38	4.44	12.0
NETM	8.50	2.50	NETMANAGE INC.	3.03	-0.22	-6.7
NTRX	7.00	1.44	NETRIX CORP.	1.69	-0.25	-12.9
NCDI	16.25	7.00	NETWORK COMPUTING DEVICES	8.25	-0.19	-2.2
NWK	22.38	11.25	NETWORK EQUIPMENT TECH.	14.94	-1.19	-7.4
NETG	30.25	11.13	NETWORK GENERAL	19.88	-1.50	-7.0
NN	69.38	26.50	NEWBRIDGE NETWORKS CORP.	46.38	2.44	5.5
NT	113.88	57.75	NORTHERN TELECOM LTD.	90.00	-1.75	-1.9
NOVL	13.00	6.28	Novelling.	8.00	-0.06	-0.8
ODSI	19.25	8.19	OPTICAL DATA SYSTEMS INC. (L)	9.13	-0.88	-8.8
PCTL	33.50	7.94	PICTURETEL CORP.	9.25	-0.56	-5.7
PTON	4.25	1.31	PROTEON INC.	1.75	-0.25	-12.5
RACO	5.50	1.00	RACOTEK INC.	1.31	-0.13	-8.7
RETX	9.25	3.38	RETIK	4.69	-0.06	-1.3
SBC	67.94	48.38	SBC COMMUNICATIONS (H)	67.94	4.56	7.2
SFA	24.94	14.25	SCIENTIFIC ATLANTA INC.	19.88	0.06	0.3
SHVA	56.13	8.25	SHIVA CORP.	9.75	-0.38	-3.7
FON	57.75	37.50	SPRINT CORP.	57.75	5.94	11.5
SMSC	18.13	8.25	STANDARD MICROSYSTEMS CORP.		-0.44	-3.8
USW	42 81	30.00	US WEST INC. (H)	42.81	0.81	1.9
XIRC	31.13	7.50	XIRCOM	9.44	-0.44	-4.4
XYIN	44 00	1238	XYLAN CORP.	16.69	-0.56	.3.3

Nov 14 WK NET WK PCT

PC:	s and t	Norks	tations	0	FF 1.8	39%
AAPL	29.56	12.75	APPLE COMPUTER INC.	18.31	-1.06	-5.5
CPQ	79.56	26.88	COMPAQ COMPUTER CORP.	63.94	0.38	0.6
DELL	103.88	22.00	DELL COMPUTER CORP.	79.00	0.94	1.2
GTW	46.25	19.38	GATEWAY 2000 INC.	28.69	0.44	1.5
HWP	72.94	47.75	HEWLETT PACKARD CO.	61.25	-0.50	-0.8
MUEI	25.38	13.00	MICRON INTERNATIONALING.	14.00	0.19	1.4
NIPNY	74.00	49.50	NEC AMERICA (L)	50.50	-2.75	-5.2
SGI	30.31	12.63	SILICON GRAPHICS	13.38	-0.38	-2.7
SUNW	53.31	25.50	SUN MICROSYSTEMS INC.	33.69	-2.75	-7.5

Lai	rge Sy	stems			UP O.	61%
DGN	37.94	13.63	DATA GENERAL CORP.	17.94	-1.81	-9.2
DEC	53.81	25.00	DIGITAL EQUIPMENT CORP.	48.81	-1.75	-3.5
IBM	109.44	63.63	IBM	101.00	2.25	2.3
MDCD	8.13	2.88	MERIDIAN DATA INC.	4.31	-0.13	-2.8
PRCM	20.13	9.00	PROCOM TECHNOLOGY, INC.	17.50	0.38	2.2
SQNT	31.25	14.50	SEQUENT COMPUTER SYS.	23.31	2.56	12.3
TEXM	6.00	2.06	SEQUOIA SYSTEMS INC. (H)	4.75	0.25	5.6
SRA	60.75	23.50	STRATUS COMPUTER INC.	32.38	-1.25	-3.7
UIS	16.50	5.75	UNISYS CORP	14.13	0.31	2.3

201	radi C				1 1 1 1 1 1	-6 70
ADBE	53.13	32.50	ADOBE SYSTEMS INC.	48.31	0.81	1.7
AMSWA	15.63	4.63	AMERICAN SOFTWARE INC.	11.00	-1.00	-8.3
APLX	26.50	3.13	APPLIX INC.	6.75	-0.31	-4.4
ARSW	53.25	17.00	ARBOR SOFTWARE	31.88	-4.13	-11.5
ADSK	51.13	21.00	AUTODESKINC.	35.75	-1.88	-5.0
BGSS	38.00	22.50	BGS Systems Inc.	33.50	-1.25	-3.6
BMCS	69.50	39.63	BMC SOFTWARE INC.	60.13	0.75	1.3
BOOL	35.25	18.75	BOOLE AND BABBAGE	28.63	-0.38	-1.3
BORL	11.63	5.31	BORLAND INT'L INC. (H)	10.94	0.38	3.6
BOBJY	16.75	6.63	BUSINESS OBJECTS	11.00	0.38	3.5
CAYN	6.25	2.00	CAYENNE SOFTWAREING.	2.78	-0.09	-3.3
CNTR	5.88	1.13	CENTURA SOFTWARE	1.50	-0.31	-17.2
CHKPF	50.50	15.63	CHECKPOINT SOFTWARE TECHNOL	oc 144.75	0.75	1.7
COGNE	39.50	20.00	Cognos Inc.	20.75	-1.13	-5.1
CA	81.94	37.25	COMPUTER ASSOCIATES	71.75	-1.69	-2.3
CVN	10.00	1.94	COMPUTERVISION CORP.	3.44	0.00	0.0
CPWR	36.63	12.13	COMPUWARE CORP.	33.25	2.00	6.4
CSRE	18.88	6.50	COMSHARE INC.	6.88	-0.06	-0.9
COSFF	9.69	2.66	COREL CORP.	2.81	-0.13	-4.3
DWTI	6.63	2.25	DATAWARE TECHNOLOGIES INC.	3.13	-0.44	-12.3
FILE	36.50	9.50	FILENET CORP.	25.63	0.75	3.0
FRTE	40.75	7.25	FORTE SOFTWARE	10.25	-1.06	-9.4
FTPS	8 63	2.56	FTP SOFTWARE INC.	2.75	-0.19	-6.4
HUMCF	54.25	22.00	HUMMINGBIRD COMM. LTD.	35.25	-0.88	-2.4
HYSW	40.38	13.00	HYPERION SOFTWARE CORP. (H)	39.94	2.06	5.4
IRIC	20.00	11.13	Information Resources	16.13	0.13	0.8
IFMXE	27.63	5.63	INFORMIK CORP.	6.88	0.31	4.8
INGR	1419	6.25	INTERGRAPH CORP.	10.00	0.00	0.0
LEAF	3.88	0.81	INTERLEAF INC. (H)	3.50	-0.06	-1.8
ISUI	18.50	6.25	INTERSOLVINC.	12.56	-0.81	-6.1
INTU	40 25	20.88	INTUITING.	30.50	0.50	1.7
TLC	20.50	5.50	LEARNING CO. (THE)	18 50	0.00	0.0
LCWX	12.88	4 1 3	LOGIC WORKS	8 75	0.75	9 4
MAPS	12.63	7.88	Mapineo Corp.	11.75	2.13	22.1
MATH	5.13	2.19	MATHSOFT	3.38	-0.13	-3.6
MCAF	78.50	36.50	McAfee Associates	48.00	-4.31	-8.2
MENT	13 13	6.50	MENTOR GRAPHICS	10.00	0.00	0.0
MIFGY	39.13	12.75	Micro Focus	34 00	-0.13	-0.4
MGXI	10.63	4 00	MICROGRAFKING. (H)	9 38	-0.38	-3.8
MSFT	150.75	70.75	MICROSOFT CORP.	132 88	2.75	2.1
OBJS	3.13	0.75	OBJECTSHARE, INC. (L)	0.97	0.03	3.3
ORCL	42.13	22 50	ORACLE CORP	34 63	0.56	1.7
РМТС	64.25	3 7.50	PARAMETRIC TECHNOLOGY	49 19	3 1 3	6.8
PSFT	68 63	30.63	PEOPLESOFT	64 13	.0.25	-0 4
PTEC	19.75	11 00	PHOENIX TECHNOLOGIES	14 88	-0 50	-3.3
PSQL	13.75	6.50	PLATINUM SOFTWARE	8 38	-1.38	-34.1
PLAT	2888	10 25	PLATINUM TECHNOLOGY	25 63	0 25	10
PRGS	25 25	12 63	PROGRESS SOFTWARE CORP.	21 75	0 63	3 0
RNBO	28 13	13.75	RAINBOW TECHNOLOGIES INC	23 75	0 75	3.3
REDB	2650	5 00	RED BRICK SYSTEMS INC	7.34	0.41	-5 2
ROSS	9.75	1.75	ROSS SYSTEMS, INC	3 75	0 00	00
SAPE	61.00	30.00	SAPIENT CORP	51 25	-1 75	-3.3
SCOC	8 6 3	3 1 3	SCOINC	5.75	0 13	2 2
SDTI	44 38	21 00	SECURITY DYNAMICS TECH	34.63	-2.00	-5.5
SOTA	17 63	888	STATE OF THE ART	15 13	-0.38	24
SSW	36.75	27.25	STERLING SOFTWARE INC.	34 63	0.25	0.7
SORC	30.00	16.63	STRUCT DYNAMICS RESEARCH	18 63	0 25	14
SYBS	23.63	12.13	SYBASEINC.	15.81	0 13	0.8
SYMC	25.75	11.75	SYMANTEC CORP	23.63	2 06	96

:XCH	27-MEEK	KANGE		2 PM	CHANCE	CHANCE	
				21			
SAX	17 63	3 88	SYSTEM SOFTWARE ASSOC.	13.50	1.06	8.5	
SYSF	29.75	6.00	SYSTEMSOFT CORP.	7.13	-0.25	-3 4	
RUV	5.19	1.50	TRUEVISION CORP.	3.25	-0.25	-7.1	
/IEW	27.38	9 25	VIEWLOGIC SYSTEMS	24 13	-1.13	-4.5	
/MRK	11.75	5.75	VMARK SOFTWARE INC	6 88	-0.88	-113	
WALK	18.25	10.50	WALKER INTERACTIVE SYSTEMS	13.75	-0 63	43	
WALL.	29.13	12.75	WALL DATA INC.	15.13	-0.63	-40	
WANG	25.00	16.00	WANG LABORATORIES INC.	22 38	-0 25	11	
Int	ernet)FF 6.	41%	
AMZN	66.00	15.75	AMAZON.COM	48 50	-5.50	-10 2	

Internet				OFF 6.41%			
AMZN	66.00	15.75	Amazon.com	48 50	-5.50	-10 2	
AOL	91.13	24.50	AMERICA ON-LINE	74.44	-5.56	-7.0	
MHTA	30.63	16.63	AT HOME CORP.	1950	3.00	-13.3	
CSRV	14.56	8.88	COMPUSERVE CORP.	12.00	-0.50	-4.0	
EDFY	22.13	8.88	EDIFY CORP.	17.78	-1.06	-5 6	
XCIT	35.00	5.50	EKCITE, INC	26.25	-0.75	-2.8	
SEEK	14.50	4.38	INFOSEEK CORP	11.31	-1.25	-10.0	
LCOS	42.00	9.50	LYCOS INC.	31.50	2.25	7.7	
NETC	21.88	7.88	NETCOM ON-LINE	19.00	-0.44	-2.3	
NSCP	65.00	23.50	NETSCAPE COMM CORP.	31.00	-1.63	-5.0	
ОМКТ	20.25	6.50	OPEN MARKET INC.	11.06	0.06	0.6	
PSIX	14.50	5.50	PSINET	6.38	-1.47	-18 7	
ODEK	7.13	2.00	QUARTERDECK CORP.	2.22	-0.28	-11.3	
RAPT	25.00	8.88	RAPTOR SYSTEMS	13.06	-0.69	-5.0	
SCUR	14.81	4.75	SECURE COMPUTING CORP. (H)	11.88	-1.63	-12.0	
SPYG	18.88	6.00	SPYCLASS INC.	7.94	-0.56	-6.6	
YHOO	58.63	11.25	YAHOO!INC.	48.00	-1.75	-3.5	

Se	micon	OFF 2.36%				
AMD	48.50	2 69	Advanced Micro Devices	20.69	-1.81	-8.1
ADI	36.69	20.63	ANALOG DEVICES INC.	29.81	-0.94	-3.0
CHPS	26.50	7.88	CHIPS AND TECHNOLOGIES	15.50	-0.31	-2.0
CRUS	21.88	8.00	CIRRUS LOGIC	14.50	-0 38	-2.5
CY	18.94	10.13	CYPRESS SEMICONDUCTOR CORP.	11.25	-0.19	-1.6
CYRX	35.00	17.13	CYRIX	26.81	-1.81	6.3
INTC	102.00	56.88	INTEL CORP.	78.63	3.19	4.2
LSCC	74.50	38.38	LATTICE SEMICONDUCTOR	53.75	-019	-0 3
LSI	46.88	18.63	LSI LOGIC CORP.	23.00	0.13	0.5
MCRL	46.88	11.25	MICREL SEMICONDUCTOR INC.	34.88	0.38	1.1
MU	60.06	23.63	MICRON TECHNOLOGY (L)	23.88	-2.88	-10.7
MOT	90.50	50.75	MOTOROLAINC.	64.69	2.94	4.8
NSM	42.88	20.50	NATIONAL SEMICONDUCTOR	32.63	-1.94	-5.6
TXN	142.50	53.50	TEXAS INSTRUMENTS	96.94	-1494	-13.4
VLSI	38.69	14.88	VLSITECHNOLOGY	30.69	0.94	3.2
XLNX	58.50	29.38	XILINX (L)	33.25	0.44	1.3
	00.50	17.00	W color	30.56	0.23	3.0

Per	iphera	als and	Subsystems	01	FF 0.4	14%
ADPT	54.25	30.13	ADAPTEC INC.	46.75	-3.25	-6.5
APCC	32.88	15.25	AMERICAN POWER CONVERSION (H)	31.75	-0.06	-0.2
CREAF	28.75	5.63	CREATIVE TECHNOLOGY LTD. (H)	27.75	1.00	3.7
RACE	24.50	4 56	DATA RACE INC. (L)	5.50	0.13	2.3
DTM	12.50	7.38	DATARAM CORP.	8.75	-0.50	-5.4
EMC	65.13	27.75	EMC CORP.	62.06	6.06	10.8
EMLX	21.25	14.13	EMULEX CORP.	15.00	-2.00	-11.8
ESCC	35.88	22.00	Evans and Sutherland	31.25	0.50	16
EXBT	17.50	9.50	EXABYTE	10.38	·0.06	-0.6
IISLF	2.63	0.94	INTELLIGENT INFO. SYSTEMS	1.19	0.00	0.0
IOM	30.13	14.13	IOMEGA CORP.	29.13	1.25	4.5
IPLS	2.81	0.94	IPL Systems Inc.	1.88	0.13	7.1
KMAG	36.75	15.31	KOMAGINC.	19.63	0.75	4.0
MTSI	34.88	17.13	MICRO TOUCH SYSTEMS INC.	21.25	-0.88	-4.0
MTIC	17.88	2.25	MTI TECHNOLOGY CORP.	1244	0.13	1.0
PNCL	7.81	0.59	PINNACLE MICRO INC.	0.66	0.00	0 0
AQM	23.06	2.38	QMSINC.	2.88	0.13	4.5
QNTM	43.25	11.50	QUANTUM CORP.	29 75	-0.88	-29
RDUS	1.56	0.19	RADIUS INC.	0.50	-0.03	-5.9
SEG	56.25	23.94	SEAGATE TECHNOLOGY (L)	25.38	-1.25	-4.7
SOS	19.63	7.75	STORAGE COMPUTER CORP. (L)	8.38	0.13	1.5
STK	63.50	33.25	STORAGE TECHNOLOGY (H)	61.25	0.13	0.2
TEK	46.50	29.25	TEKTRONIK INC.	40.69	∙0.56	-1.4
WDC	54 75	19.63	WESTERN DIGITAL CORP. (L)	22.75	-1.31	-5.5
XRX	88.00	45.50	XEROX CORP.	73.75	-2 88	-3.8

Ser	vices					UP1.36%		
AMSY	37.13	15.75	AMERICAN MGMT. SYSTEMS	21.00	031	1.5		
ANLY	46.75	21.25	ANALYSTS INT'L	45.50	-0.06	-0 1		
AUD	57.00	26.56	AUTO DATA PROCESSING (H)	57.00	3.31	6.2		
BDMI	28.63	19.75	BDM INTERNATIONALING.	20.31	-0.44	-2.1		
CATP	40.75	21.25	CAMBRIDGE TECH, PARTNERS	38.13	-0.94	-2.4		
CEN	49.50	29.50	CERIDIAN CORP.	42.69	1.88	4 6		
CDO	34.00	18.38	COMDISCO INC.	29.56	-1.63	-5.2		
CPU	37.25	13.25	COMPUSAINC.	35.75	1.81	5.3		
CHRZ	45.63	16.75	COMPUTER HORIZONS	32.50	4.38	15.6		
CSC	86.50	57.88	COMPUTER SCIENCES	73.81	0 94	1.3		
TSK	49.38	16 63	COMPUTER TASK GROUP	29.19	-0.69	-2.3		
EGGS	11.13	3.63	EGGHEAD DISCOUNT SOFTWARE	8.69	-0.69	.73		
EDS	49.63	29.56	ELECTRONIC DATA SYSTEMS CORP	38.13	0.56	1.5		
ICO	40.63	19.75	INACOM CORP.	31.50	1.25	4.1		
INEL	8.75	2.25	INTELLIGENT ELECTRONICS	4.94	0.19	3.9		
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SDS	27 13	18 50	SUNGARD DATA SYSTEMS	25.69	1.25	5 1		
VST	28.25	6.50	VANSTAR CORP.	12.50	-0.56	-43		

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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NT Workstation luring users

CONTINUED FROM PAGE 1

that the additional hardware requirements for NT Workstation weren't a deterrent. "Our standard desktop configuration is 32M bytes and at least a 2G-byte hard drive," he said.

Last year, Microsoft shipped nearly 2.3 million copies of NT Workstation, representing 3% of desktop operating systems, according to International Data Corp. (IDC) in Framingham, Mass. That's expected to reach 24 million units — nearly 20% market share — by the year 2000.

"That's a 937% increase from 1996, which is huge. Windows 95/98 growth rate during the same period will rise 87%," said Brian McDonough, an IDC analyst. "Windows 95/98 will remain strong. But Microsoft is aggressively repositioning Windows NT Workstation to be the business platform of choice, and users will take heed."

Although it won't supplant Windows 95/98 as the dominant business desktop for years to come, NT Workstation will account for one-third to one-half of all new business operating system shipments by the year 2000, said Jonathan

Roberts, Microsoft's Windows 95/98 and Windows NT Workstation director.

But some users are hedging their bets.

Jim Marshall, an information delivery security consultant at Dow Chemical Co. in Midland, Mich., said that based on security considerations, he would rather see his 35,000 users on the NT Workstation platform vs. Windows 95. But he said the ultimate decision will be driven by timing. "The issue for us is how long after Windows 98 ships will NT Workstation 5.0 ship. If it's too long, we won't wait. We can't let the rest of the world move on while we hang back," Marshall

Jeff Dazell, a LAN network services administrator at Dana Corp. in Toledo, Ohio, said NT Workstation will predominate in his firm, but not immediately. "Right now, it's difficult for many of our divisions to justify the expenditure of moving to [NT Workstation] when Windows 95 is working just fine," he said. But, Dazell added, "as the leases end on our current desktop machines, all the new machines we buy will run Windows NT Workstation."□

Exchange 5.5 saves on servers

CONTINUED FROM PAGE 1

number of Exchange servers would significantly lower administrative costs. "Most of the costs of administration are not in the servers," said Bob Lewin, an analyst at Dataquest in San Jose, Calif. He said Exchange's lack of an enterprisescale directory and graphical administration tools means sites will continue to grapple with administration.

SAVINGS EXPECTED

Administrators at one 60,000-user Exchange site said they expect to eliminate about half of the site's 150 Exchange servers as a result of the upgrade, which the company estimates could cut administration costs by as much as a third.

Sites that have built highly distributed messaging networks probably aren't set up to consolidate Exchange 5.5 servers, users pointed out.

"Consolidating servers is a possibility, but it won't be a dramatic reduction, because of the way we have structured our [Exchange network]," said Bob Cavallaro, director of advanced technology at American International Group (AIG). The New York-based insurer already has centralized public folders and uses separate servers to run E-mail. The increased server headroom may keep AIG from adding more E-mail servers, Cavallaro said.

Several sites said they plan to reduce the number of mail servers they run but are waiting for improved clustering support to be added to Exchange before they do so. Microsoft is expected to provide that functionality in the next release, code-named Platinum, due in the middle

"If you are going to have a lot of users running on each server, you want to make sure the server is extremely reliable," said Bob Winterton, systems specialist at Consolidated Edison Company of New York, which is moving 10,000 users from Microsoft Mail and IBM Professional Office System to Exchange. Clustering will add the level of reliability that ConEd is looking for, he explained.

In the meantime, Exchange 5.5 means the utility can relax some of the limitations it has imposed on E-mail users now that storage isn't an issue, Winterton

CA eyes remote PC management

By Patrick Dryden

COMPUTER ASSOCIATES International, Inc. this week will expand the PC control capability of its enterprise management suite at Comdex/Fall '97 in an effort to reduce support hassles for users and increase acceptance by vendors.

CA plans to post a free upgrade to the

framework version of Unicenter TNG, a subset of the full suite that several system vendors bundle with servers to enable some basic management functions.

Hoping to snare similar bundling deals with PC makers, CA will enable the Unicenter TNG framework version to start new PCs equipped with "wake-up" triggers in the motherboard and network interface. Then central operators could apply automated tools to configure, control or upgrade remote PCs, even if users shut them down at night.

"I applaud any effort to build management in at the factory, because the capability must be pervasive to make a significant change," said Jonathan Eunice, an analyst at Illuminata, Inc. in Nashua, N.H.

Intel Corp. and some PC vendors are expected to announce plans to provide CA's framework soft-

CA last week announced plans to add remote-control capabilities to all its management products when it acquired privately held Avalan Technology, Inc. in Holliston, Mass., for an undisclosed

Avalan's Remotely Possible software can control Windows PCs across a network or modem connection. CA will add this to its ARCserve backup and Inocu-LAN virus protection tools. CA also will offer remote-control options for Unicenter TNG and Paradigm Service Desk.□

Intel

Corp. is integrating

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management technology into the

i960RP I/O processor in order to provide

the direct management capabilities for I/O subsystems customers are asking for.

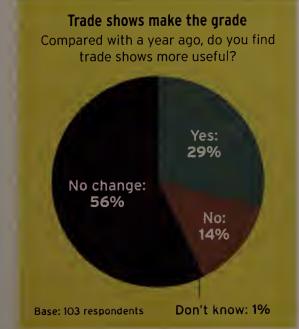
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E-mail circula	ation@cw.com.
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Cost concerns slow user migration to 32-bit apps

CONTINUED FROM COVER 1

"We've bought all of Microsoft's new stuff down the line, gotten rid of just about all of our 16-bit applications in the last year and replaced 80% of our 4,000 corporate desktops in the last 18 months with 32-bit systems and applications," Thibodeaux said.

Some developers say the key to migration is to slowly rewrite the legacy applications so the hit doesn't come all at once.

"We are still running a fairly major number of 16-bit applications, and we've got to get rid of all of them now. We've got to develop completely new applications to replace them. It feels like an endless, costly journey," said Dave Lingren, director of advanced development at Dunsgate, the IS arm of The Dun &

EASING MIGRATION PAIN

Migration Planning Kit is part of Windows Resource Kit for Windows 95. It can be downloaded from Microsoft's Web site at www.microsoft.com.

What you get:

- A five-step migration process, including testing, evaluation, automation and physical rollout
- Tools to help write batch migration utilities; that lets users do hands-free installation with options they choose for

A service pack that includes documentation for using migration tools.

What you get:

- Net setup which lets users set up network distribution share settings
- Setup script "unattend.txt file" which automates the process
- Systems Difference Tool which lets users install a list of prepicked apps

Office 97 also lets users get bulk upgrade pricing from earlier versions. Bradstreet Corp.

Lingren said he hopes to have first versions of most of his applications rolling by the middle of next year and complete versions six months after that.

He also plans to shift all his applications to object-oriented, World Wide Web-based programs so he can easily send legacy information to customers over the Internet.

For nearly a year, Microsoft's large corporate customers have dealt with the software giant dropping support for the Windows 3.x generation in new versions of popular packages such as Microsoft Office and development tools such as Visual C++ and Visual Basic.

But Microsoft officials said the company is trying to help its customers make the technical transition. A spokesman said the company is shipping tools such as its Network Installation Wizard, which ships with Office 97 and helps with the deployment phase. Among other things, it lets users customize the interface.

Other tools allow for automatic version control, enabling users to automatically save to older versions of files to be exchanged if needed. Microsoft also offers a resource kit that outlines some key points for users who are migrating, such as evaluating software, testing it and planning hardware requirements (see chart at left).

Despite that help, it has been far from a painless transition. Several developers said the key is to slowly start rewriting the legacy applications so the hit doesn't come all at once.

"They're not doing anything to help migrate a 16-bit application up to a 32-bit application," Lingren said. "Compared to Visual Basic 3, [Version 5] has a completely different architecture with Active Server Pages and [Hypertext Markup Language]. So you can't just migrate. But they've made [Visual Basic 5] so good it's easy to write the new applications."

Other corporate IS managers said the process is keeping their workers from focusing on other projects. They said the lesson they've learned is to just take it application by application, or desktop by

Many corporate developers said they have found it so tough to move their 16-bit applications to 32-bit, they are rewriting many of them.

"Migrating from 16- to 32-bit has been

WORLDWIDE SHIPMENTS OF PC OPERATING SYSTEMS 63M 33.5M 19.5M 13M 4.3M 0.5M 5M 1997* 1995 Windows NT Workstation Windows 3.1/DOS Windows 95 (32-bit)

Source: International Data Corp., Framingham, Mass.

a hurdle," said the group director of IS at a major television network, where more than half the applications are still 16-bit.

"There's no migrating. It's coding

changes. It's been so tough and expensive that we're still slugging along with a lot of 16-bit," according to the executive, who requested anonymity.□

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Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement #0385697. Computerworld (ISSN 0010-4841) is published weekly: except a single combined issue for the last two weeks in December by Computerworld, Inc., 900 Old Connecticut Path, Box 9171, Framingham, Mass. 01701-9171. Copyright 1997 by Computerworld, Inc. All rights reserved. Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased from the circulation department. Photocopy rights: permission to photocopy for internal or personal use is granted by Computerworld, Inc., for libraries and other users registered with the Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970. Reprints (minimum 100 copies) and permission to reprint may be purchased from Michelle Olk, Computerworld Reprints, c/o Reprint Services, 315 Fifth Ave. Northwest, St. Paul, Minn. 55112, (800) 217-7874. Fax: (612) 633-1862. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: \$3 a copy: U.S. — \$48 a year; Canada — \$110 a year; Central & So. America — \$150 (surface) a year; Europe — \$295 a year, all other countries — \$295 a year. Subscriptions call toll free (800) 552-4431. POSTMASTER: Send Form 3579 (Change of Address) to Computerworld, Box 2044, Marion, Ohio 43305.

COMMENTARY

Think tribally, fail globally

By Allan E. Alter

It's not my deadline. I can't be bothered. Have you ever said or thought that about someone else in IS? Have you ever shafted, by commission or omission, someone in another part of your IS organi-

zation?

If so, you're part of the reason IS has such a bad reputation in many organizations. The problem is tribalism.

My dictionary defines "tribalism" as "strong in-group loyalty" or "exaltation of the tribe above other groups," and it defines "clannish" as "tending to associate only with a select group of similar background or status." That sure sounds like life inside IS. The typical IS organization is an amalgamation of tribes: data center, network administrators, help desk, management, developers, programmers.

Some tribes have distinct personalities. Help desk staffers usually are extroverts; there's more noise and chumminess at their conferences than at other IS events. Quality assurance professionals are zealots who believe they're on a mission from the quality goddess.

Some tribes regularly knock heads. When

a programmer looks at a quality assurance person, he sees a pest who keeps him from completing his work.

One data center manager compares senior network and systems technicians to surgeons. "They always think they're above everyone else," he says. "They think they know best."

The IS tribes don't talk to one another enough, and they stick to their own technical priorities. When a project is running aground, don't expect one tribe to go out of its way to help another, a former CIO told me.

Users see this. To them, it's like walk-

ing into a garage and getting three explanations of your repair bill from three different mechanics.

"When we talk with one person in IS, we don't feel we are talking to everyone in IS," a line manager told me. That results in delays, wasted time and another black eye for

those disorganized, dense IS people.

Ultimately, the whole business suffers. When IS thinks tribally, companies can fail globally. IT initiatives that require an international (or even just cross-divisional) perspective are held back by

people who are oblivious to the big picture.

What should you do? First, don't try to abolish the tribes. You can't, because organizing into tribes is the most comfortable and natural way for highly skilled and specialized individuals to work.

But don't let tribalism overwhelm the common good. Encourage communication, then go the extra mile to make it happen. Bring your whole IS organization together in meetings, then use Q&A sessions and social time to get them to talk

For critical positions, choose managers who make intradepartmental communication a priority. Never stop talking about business priorities. And if you're in an IS association, encourage it to get a dialogue going.

Unless IS tribes can communicate with one another, they'll never be able to communicate effectively with that other, even more alien tribe: users. □

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It's the atoms, stupid

By David Moschella

ly shared pieces of conventional Web wisdom has been that the world of bits will change much more than the world of atoms.

The logic has seemed infallible: Because pure information businesses such as banking, insurance and publishing can be fully replicated in cyberspace, those sectors should surely be the most radically transformed portions of our economy. Someday, they probably will.

But for now, things are evolving very differently. Many of the major bit-based industries seem to be passing through the Web's early years relatively unscathed. Outside the computer business itself, Web-based newspapers and magazines have established only a minor presence. Ditto online entertainment, be it music, drama or sports. From a financial services perspective, how much has banking or insurance really changed?

In contrast, an increasing number of atom-based industries are on the verge of revolution. Amazon.com clearly has created panic at rival booksellers Borders and Barnes & Noble, as has Dell Computer among PC resellers. More recently,

the automobile dealer business, with its absurdly secretive sales and pricing culture, has shown signs of imminent collapse as customers flock to the Web to get accurate pricing information.

To the surprise of many, these atom-based Web success stories have become the signature examples of what consumer electronic commerce means.

The explanation is simple. The savings atom-based companies gain by bypassing traditional channels are more compelling than

the enhanced services that characterize most online bit-based offerings. In the case of books, PCs and cars, consumers directly benefit from the real costs that are taken out of the distribution system. Sure, there are many non-price-related

benefits, such as convenience, customization and choice. But in most cases, those are of secondary importance.

In contrast, in many bit-based businesses, especially those supported by advertising, there's little consumer cost to be reduced. Therefore, Internet-based systems compete mostly on convenience and functionality. With the Web still immature, those enhanced services, although certainly possible, often are risky. The result is that very few bit-based businesses have been truly revolu-

tionized.

What about online stock trading and travel services? Aren't those equally compelling symbols of a bit-based revolution? Only partially. In both cases, the Web basically is being used to replace telephone calls — essentially eliminating a customer-service

agent. Clearly, that's just another form of disintermediation. Once again, lower prices, not enhanced services, drive the demand.

In other words, the real consumer electronic-commerce excitement on the

Web is consistently found in areas where buyers can save money. Perhaps that shouldn't be surprising, but it's still often overlooked. It also has profound implications for near-term Web evolution.

Businesses that are primarily supported by advertising will find it more difficult to save consumers money. Perhaps less apparent, industries such as insurance and banking won't take off on the Web until they offer a more tangible value proposition. They almost totally have failed to do that. Indeed, banks, with their recent efforts to charge for ATM use, appear to be heading in the opposite direction.

As you examine your company's Web strategy, keep in mind one simple question: "What can we do online that saves our customers money?" If the answer is "Not much," the Web probably won't revolutionize your core business any time soon. But if there are areas of potential savings, you'd best get cracking. Because if you don't, someone else certainly will. And if you're in the business of selling atoms, be doubly careful. You're now clearly where the action is. \square

Moschella is an author, independent consultant and weekly columnist for Computerworld. His Internet address is david_



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THE FUTURE IS WIDE OPEN

The Back Page Dispatches & images from the fringes of the lect

Ultrapractical Web sites

he holiday season means weight gain for the average American. Can you afford to gain weight? Should you be trying to lose? Tap in to the Shape Up America site and calculate your Body Mass Index (www2.shapeup. org). An even grimmer site is the Heart Attack Survival Calculator (www.mediqual.com), where you plug in your age and vital signs to find out your probability of survival. — Sharon Machlis and Kim S. Nash

ublic accountability has come to the oncesecretive world of hospitals. The American Hospital Directory site (www.ahd. com) has data for virtually every U.S. hospital, such as average length of stay, charges for specific diagnoses and procedures performed.

o bookmark list should be without these useful but obscure sites: Learn2.Com (www. learn2.com) with tutorials on how much to tip, how to tie a necktie and other Life 101 topics; the Virtual Reference Desk (www.refdesk.com/facts.html); and the FAQ Finder (http://ps. superb.net/FAQ/), which has frequently-asked-question documents for topics ranging from client/server to viruses.

GOING ONCE, TWICE, CYBERSOLD!

The coin auction site Numismatists Online (www.numismatists. com) marked its second anniversary with the recordbreaking sale of this 1884 \$3 gold piece for \$23,000 during

an online auction. The site was launched in 1995 by San Francisco-based Hobby Markets Online, a profitable Internet broker for the collectibles market.



Usenet forums

The following are recent Usenet newsgroup discussion threads found on the Internet. You may be able to pick up the thread by entering keywords at the search engine www.dejanews.com.

■Mistakes by spell checkers (comp.human-factors)

- ■Noise and programmer productivity (comp.software-
- ■Intranet security (comp. infosystems.intranet)
- ■Error messages (comp. human-factors)
- Year 2000 and Dilbert (comp.software.year-2000)
- Informix security questions (comp.databases.informix)
- ■Impact of multicolored text (comp.human-factors)
- ■Moving from Oracle to DB2 (comp.databases.ibm-db2)

InsideLines

All's fair in love and database wars

Far be it from Oracle to let its downtrodden database rival Informix make its comeback pitch in peace. Tomorrow, just prior to a meeting with analysts at which Informix is due to announce a financial restatement and product repackaging, the marketing barracudas at Oracle plan to detail trade-in credits aimed at luring Informix users to jump ship. Oracle is also promising to show off some recent converts. And they complain about Microsoft.

Speaking of Microsoft . . .

At last week's CMA conference in New York, publisher and venture capitalist Harry Newton boasted that the burgeoning computer telephony marketplace is more exciting than the mainstream computer market right now. "And even Microsoft hasn't found us yet," Newton said. Just then, the ventilation system in the meeting room groaned and quaked loudly. "Yes, Bill?" Newton wisecracked.

Bill is watching

Call him the world's richest person. Call him a software mogul. But don't call him "the Great Satan" or "gangly." Bill Gates will tell you you're wrong - politely. In an E-mail to Jim Carlton, the author of a new book on Apple Computer's rise and fall, Gates said he "really enjoyed reading it a lot." But in his critique, Gates added: "I think I am treated unfairly on pages 27 and 326 (Great Satan, gangly, deer caught in headlights, cold-blooded killer, going for the jugular, wanted to dominate not change the world . . .)." The list goes on, but you get the idea.

NCR layoffs may cut deeper

A little bird tells us that layoffs at NCR may be much deeper than what was announced last month. In October, NCR announced that it will be giving pink slips to about 1,000 people next year, mostly administrative and support staff. The actual figure is much higher, insists the bird. An NCR spokesman last week told us that the company wouldn't comment on rumors and speculation.

Reback makes his point

Antitrust lawyer Gary Reback "extremely grudgingly" had to use Microsoft PowerPoint slides to make his anti-Microsoft presentation at Ralph Nader's conference last week in Washington. The reason? Reback explained that he used some of them at a corporate conference "where they told me that they were standardized on Microsoft and that's what I had to do."

Here's another irony . . .

The U.S. Department of Justice is piloting a handful of Sun Microsystems, Inc.'s network computers --- the JavaStations. One IS exec said the network computers are slated to be adopted for the agency's attorneys. That means Janet Reno may eventually be writing up her complaints about Microsoft Corp. on a JavaStation.

<u>EMC slates Fibre Channel rollout</u>

EMC plans to ring in the holiday season by announcing its Fibre Channel disk array Dec. 1. The Hopkinton, Mass.-based storage giant has been making Fibre Channel disk arrays for use by Hewlett-Packard's line of Unix servers. But EMC is expected to expand platform support with this new line beyond HP-UX.

leading IS employee at the U.S. Department of Justice said during an industry seminar last week that a big part of her fig to be is playing cat-and-mouse with some of the country's leading lawyers. She said she had to offer a special class on how to double-click the mouse. And she swore she wasn't making up a story about one attorney who thought the mouse was actually like his remote control. He couldn't figure out why nothing happened when he pointed at his screen and clicked for a new application. If you have an interesting tidbit to pass along, contact News Editor Patricia Keefe at (508) 820-8183 or patricia_keefe@cw.com.

Phony bill detector

Creative Development in Miami has developed a counterfeit detector that can distinguish between real \$100 bills with the new security thread and fake ones that counterfeiters create with computers and color printers.





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